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The Braconidae (Hymenoptera) of Taiwan
VIII. Brulleiini, Diospilini and Helconini[1]

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Abstract: Two species of Brulleiini, 8 species of Diospilini and 6 species of Helconini (Hymenoptera: Braconidae: Helconinae) are recognized in this paper. Thirteen species are described as new to science, 3 species are new to the fauna of Taiwan. Keys to the genera and species of the Taiwanese Brulleiini, Diospilini and Helconini are also presented.

Key words: Brulleiini, Diospilini, Helconini, Helconinae, Braconidae, Taxonomy, Taiwan.

INTRODUCTION

The subfamily Helconinae contains 5 tribes, Brachistini, Brulleiini, Diospilini, Helconini, and Maxfischeriini [1,8]. Van Achterberg [1] provided a cladogram to distinguish the tribes of Helconinae (except Maxfischeriini). Papp [8] provided a key to distingusish Maxfischeriini from Helconini. The subtribe Triaspina of the tribe Brachistini of Taiwan was revised by the authors [7]. The tribes Brulleiini, Diospilini and Helconini of Taiwan is revised in this paper.

The terminology used in this paper see Chou and Hsu [7]. All the specimens (including the type specimens) are deposited in the insect collection of the Taiwan Agricultural Research Institute, Taichung, Taiwan, ROC.

In the sections of specimens examined, the following abbreviations are used for the collectors: BHC (B.H. Chen), CCC (C.C. Chen), CCP (C.C. Pang), CHW (C.H. Wang), CHY (C.H. Yang), CJL (C.J. Lee), CNL (C. N. Lin), JS (J. Sonan), KCC (K.C. Chou), KM (K. Miyake), KSL (K.S. Lin), LYC (L.Y. Chou), MM (M. Maki), MY (M. Yoshino), SCC (S.C. Chang), SCL (S.C. Lin), TL (T. Lin), and WST (W.S. Tang).

The complete information for the collecting sites used in the material examined section under each species are as follows:

HSINCHU: Hsinchu.

ILAN: Taipinshan 1,950m.

HUALIEN: Hualien, Tayuling 2,560m.

NANTOU: Chushan, Kuandauchi 900m, Lienhuachih 650m, Meifeng 2,150m, Nanshanchi, Peitungyeanshan 2,100m, Puli, Sungkang 2,100m, Tsuifeng 2,300m, Tungpu 1,200m, Wushe 1,150m.

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Tribe BRULLEIINI

Van Achterberg [1] provided diagnosis for the tribe Brulleiini. This tribe contains two subtribes, Brulleiina and Pseudohelconina [1,3]; only the subtribe Brulleiina occurs in Taiwan. The Brulleiina contains two genera *Brulleia* Szépligeti and *Parabrulleia* van Achterberg [1]. Both genera are recorded from Taiwan for the first time in this paper.

Key to genera of the subtribe Brulleiina from Taiwan

1. Mandible angularly bent medially; T2 at least superficially sculptured basally ..... *Parabrulleia* van Achterberg

-. Mandible evenly curved; T2 smooth ..... *Brulleia* Szépligeti

Genus *BRULLEIA* Szépligeti

Brulleia Szépligeti, 1904. Genera Insect. 22:150. Type species: *Brulleia melanocephala* Szépligeti, by monotypy. - van Achterberg, 1983. Contrib. Amer. Ent. Inst. 20:288. - Chen, He & van Achterberg, 1993. Zool. Med. Leiden 67:378.

The genus *Brulleia* contains 17 species in the world [1,5,6]. One new species from Taiwan is described in this paper.

Brulleia taiwanensis sp. n.

(Figs. 87, 102)

Female: Head: 1.6 times as wide as long and 1.4 times wider than mesonotum. Eye 1.5 times as long as temple. Gena punctulate, costate ventrally; frons rugose; vertex punctulate. POL: OD: OOL=1: 0.91: 1.9. Face 0.42 times as high as wide and 1.3 times as wide as eye height and 0.59 times as wide as head, reticulate-rugose; clypeus reticulate-rugose, with small rather smooth triangular area medioventrally. Tentorial index 1.1. Maxillary and labial palpi with 5 and 3 segments, respectively; length of maxillary palp 1.1 times height of head. Labrum densely punctate. Malar space 0.94 times basal width of mandible. Antennal segments beyond 9th segment missing; F1 1.3 times as long as F2; F1 and F2 5.1 and 3.8 times their width, respectively.

Mesosoma: 1.5 times as long as high. Pronope very wide and deep, oblong. Pronotal side crenulate subdorsally, medially, and posteriorly, remainder rahter smooth. Notauli deep and crenulate, posterior wider; mesonotum punctulate. Epicnemial carina only distinct laterally, epicnemium punctate-reticulate. Subalar fossa punctate and with some rugae; precoxal sulcus complete, coarsely crenulate; disc of mesopleuron punctate, but posterodorsally rather coriaceous. Metapleuron coarsely rugose-reticulate. Propodeum coarsely rugose-reticulate, but anterolaterally punctulate to rugulose-reticulate.

Wings: Forewing: stigma 4.3 times as long as wide, basal posterior section of stigma 1.0 times apical posterior section of stigma; r-rs: 3/Rs: 4/Rs= 1: 1.7: 6.2; 4/Rs almost straight; 2/Rs: 3/Rs: r-m: 2/M= 1: 1.0: 1.1: 1.7; 1cu-a slightly postfurcal. Hindwing: 2/R vertical; Rs only shortly sclerotized basally; r-m: 1/M= 0.54: 1; 1/M: Cu&cu-a= 1.5: 1.

Hind leg: Coxa punctulate. Lengths of femur, tibia and basitarsus 5.4, 13.0 and 10.9 times their width, respectively; tibia 1.8 times as long as femur; inner and outer spurs of tibia 0.22 and 0.20 times as long as basi-

tarsus, respectively.

Metasoma: T1 2.6 times as long as wide apically; rather rugose-reticulate, basally and posteriorly rather smooth; dorsal carinae distinct in front of spiracles. Ovipositor sheath 1.5 times as long as forewing.

Color: Black; palpi yellowish brown. Antenna blackish brown. Wings hyaline; stigma and veins dark brown. Legs dark brown, metatarsus (except base) whitish yellow. Ovipositor sheath dark brown.

Lengths: Body 10.1 mm, forewing 8.9 mm, ovipositor sheath 13.8 mm.

Male: Unknown.

Holotype: ♀, Hsinchu, VII.1918 (JS & KM).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species is characterized by the maxillary palp 5-segmented, length of maxillary palp 1.1 times height of head.

Etymology: Named after Taiwan.

Genus *PARABRULLEIA* van Achterberg

Parabrulleia van Achterberg, 1983. Contrib. Amer. Ent. Inst. 20:288. Type species: *Doryctes shibuensis* Matsumura, original designation. - Chen, He & van Achterberg, 1993. Zool. Med. Leiden 67: 377.

The genus *Parabrulleia* contains only one species in the world [1]. One new species from Taiwan is described in this paper.

Parabrulleia linorum sp. n.

Female: Head: 1.6 times as wide as long and 1.2 times wider than mesonotum. Eye 1.2 times as long as temple. Gena and vertex punctulate, surroundings of stemmaticum crenulate; frons costate, punctulate near eye; vertex punctulate, with distinct medial groove. POL: OD: OOL=1: 1.4: 3.2. Face 0.39 times as high as wide and 1.4 times as wide as eye height and 0.58 times as wide as head, rugose-reticulate; clypeus rugulose. Labrum punctate, almost truncate ventrally. Tentorial index 1.3. Length of maxillary palp 0.59 times height of head. Mal ar space 1.2 times basal width of mandible. Antenna 43-egmented; F1 1.2 times as long as F2; F1, F2 and penultimate flagellomere 4.5, 3.7 and 0.92 times their width, respectively. Occipital carina arched mediodorsally, narrowly interrupted medially.

Mesosoma: 1.6 times as long as high. Pronope very wide and deep, slit-shaped. Pronotal side largely smooth, crenulate medioanterially, subdorsally and posteriorly. Notauli deep and crenulate, posterior wider; m esonotum punctulate, punctures on apical scutellum denser. Epicnemial carina irregular present laterally, epicnemium punctate-reticulate. Subalar fossa widely crenulate, rather smooth anteriorly; precoxal sulcus complete and wide, crenulate to reticulate-rugose; disc of mesopleuron largely punctulate. Metapleuron reticulate dorsa lly, coarsely rugose anteroventrally, rather smooth posteroventrally. Propodeum coarsely rugose, but anterolaterally punctulate, posterolaterally rather smooth and strongly depressed.

Wings: Forewing: stigma 3.6 times as long as wide, basal posterior section of stigma 0.83 times apical posterior section of stigma; r-rs: 3/Rs: 4/Rs= 1: 1.4: 5.2; 4/Rs almost straight; 2/Rs: 3/Rs: r-m: 2/M= 1: 1.2: 1.0: 2.1; 1cu-a postfurcal; 1/Cu: 2/Cu= 0.13: 1. Hindwing: 2-R vertical; Rs only shortly sclerotized basally; r-m: 1/M= 0.67: 1; 1/M: Cu&cu-a= 1.3: 1.

Hind leg: Coxa punctulate. Lengths of femur, tibia and basitarsus 5.9, 15.1 and 12.2 times their width, respectively; tibia 1.9 times as long as femur; inner and outer spurs of tibia 0.21 and 0.17 times as long as basitarsus, respectively.

Metasoma: T1 1.6 times as long as wide apically; rugose, smooth basally between dorsal carinae and apically; dorsal carinae distinct in basal 0.4. T2 almost smooth, only rather superficially sculptured basolaterally. Ovipositor sheath 2.6 times as long as forewing.

Color: Brownish yellow; vertex medially darker, apex of mandible black, notauli dark brown to blackish brown. Antenna brownish yellow, flagellomere 15th partly and 16th to apical black. Wings light brownish yellow; stigma and veins dark brown. Legs brownish yellow. Ovipositor sheath black.

Lengths: Body 18.3 mm, antenna 16.3 mm, forewing 15.5 mm, ovipositor sheath 39.5 mm.

Male: Unknown.

Holotype: ♀, Wushe, 6-11.V.1981 (KSL & SCL).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species differs from *P. shibuensis* (Matsumura) by the following combination of characters: antenna brownish yellow basally, black apically; occipical carina arched mediodorsally; T1 smooth apically and the ovipositor sheath 2.6 times as long as forewing.

Etymology: Named after Messrs. K. S. Lin and S. C. Lin, the collectors of the holotype of this new species.

Tribe DIOSPILINI

The Diospilini contains 12 genera in the world. This tribe is recorded from Taiwan for the first time in this paper.

Key to genera of the tribe Diospilini from Taiwan

1. Forewing with 1+2Rs cell trapezoid, vein 3/Rs shorter than vein 2-M ..... *Aspicolpus* Wesmael
-. Forewing with 1+2Rs cell rhomboid, vein 3/Rs as long as or a little longer than 2-M 2
2. Clypeus sharply pointed medially ..... *Baeacis* Foerster
-. Clypeus not sharply pointed medially ..... *Diospilus* Haliday

Genus *ASPICOLPUS* Wesmael

Aspicolpus Wesmael, 1838. Nouv. Mem. Acad. Brux. 11:155, as subgenus of *Helcon*. Type species: *Helcon carinator* Nees, by monotypy. - Watanabe, 1972. Kontyu 40(1):21.

Aspidocolpus: Agassiz 1846. Nomen. Zool. Index Univ.: 36, emend.

The genus *Aspicolpus* contains 19 species in the world. Two new species from Taiwan are described in this paper.

Key to species of the genus *Aspicolpus* from Taiwan

1. Gena and scutellum rugose-reticulate; palpi blackish brown ..... *rugosus* sp. n.
-. Gena and scutellum punctulate; palpi yellow ..... *punctus* sp. n.

Aspicolpus punctus sp. n.

(Figs. 1, 12, 23, 34, 45, 56, 67, 88, 103)

Female: Head: 1.6 times as wide as long and 1.3 times wider than mesonotum. Eye 1.7 times as long as temple. Gena punctulate; frons punctulate laterodorsally, rugose-reticulate medially and lateroventrally; vertex punctulate, surroundings of stemmaticum rather crenulate. POL: OD: OOL=1: 1.1: 2.4. Face 0.48 times as high as wide and 1.3 times as wide as eye height and 0.63 times as wide as head, densely punctate; clypeus costate. Tentorial index 1.1, malar space 0.91 times basal width of mandible. Antenna 25-segmented; F1 1.1 times as long as F2; F1, F2 and penultimate flagellomere 4.3, 3.7 and 1.1 times their width, respectively.

Mesosoma: 1.7 times as long as high. Pronotal side largely rugose-reticulate, densely punctate dorsally. Notauli deep and crenulate; mesoscutum punctulate, medioposteriorly rugose-reticulate with a carina; scutellum punctulate. Subalar fossa densely punctate to reticulate-rugose; precoxal sulcus densely punctate to reticulate; disc of mesopleuron largely glabrate, densely punctate posteriorly. Metapleuron rugose-reticulate. Propodeum largely rugose-reticulate, smooth anteromedially; with irregular median longitudinal carina anteriorly, without transverse carina and medioposterior area.

Wings: Forewing: stigma 3.0 times as long as wide, basal posterior section of stigma 1.5 times apical posterior section of stigma; r-rs: 3/Rs: 4/Rs= 1: 1.1: 5.9; 2/Rs: 3/Rs: r-m: 2/M= 1: 0.75: 0.78: 1.1; m-cu: 2/Rs+M= 2.4: 1; 1cu-a postfurcal, 1/Cu: 2/Cu= 0.11: 1. Hindwing: r-m: 1/M= 0.88: 1; 1/M: Cu&cu-a= 1.0: 1.

Hind leg: Coxa rugose dorsobasally. Lengths of femur, tibia and basitarsus 3.9, 10.7 and 6.7 times their width, respectively; tibia 1.6 times as long as femur; inner and outer spurs of tibia, 0.30 and 0.29 times as long as basitarsus, respectively.

Metasoma: T1 1.6 times as long as wide apically; rugose-reticulate, rather smooth between dorsal carinae; dorsal carinae rather distinct in basal 0.6. T2+3 1.2 times as long as wide, smooth. Ovipositor sheath 0.72 times as long as forewing.

Color: Black; palpi yellow, tegula blackish brown. Antenna blackish brown, flagellomeres 10th-12th white. Wings hyaline, stigma and veins dark brown. Legs yellowish brown; mesotarsus, metatibia basally and metatarsus yellow, metatibia apical 0.7 blackish brown. Ovipositor sheath dark brown.

Lengths: Body 5.9 mm, antenna 4.6 mm, forewing 5.4 mm, ovipositor sheath 3.9 mm.

Male: Black; palpi yellow, tegula dark brown, metasoma beyond T1 dark brown to blackish brown. Antenna blackish brown. Wings hyaline, stigma and veins blackish brown. Legs yellowish brown; metatibia (except base whitish yellow) and tarsus largely blackish brown.

Holotype: ♀, Tayuling, 9-16.VI.1980 (KSL & BHC). Paratypes: Meifeng, 1♂,17-22.VI.1979 (Malaise trap).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species differs from *A. rugosus* sp. n. by the following combination of charactes: gena and scutellum punctulate, and palpi yellow.

Etymology: *Punctus* means puncture in Latin, refers to its gena rather densely punctulate.

Aspicolpus rugosus sp. n.

(Figs. 2, 13, 24, 35, 46, 57, 68, 78, 84, 89, 104)

Female: Head: 1.6 times as wide as long and 1.2 times wider than mesonotum. Eye 1.4 times as long as temple. Gena and frons rugose-reticulate, vertex rather densely punctate. POL: OD: OOL=1: 0.80: 2.1. Face 0.46 times as high as wide and 1.4 times as wide as eye height and 0.62 times as wide as head, rugose-reticulate; clypeus punctate with faint rugose, rather smooth apically. Tentorial index 1.2, malar space 1.0 times basal width of mandible. Antenna 24-segmented; F1 1.0 times as long as F2; F1, F2 and penultimate flagellomere 4.5, 4.3 and 1.2 times their width, respectively.

Mesosoma: 1.7 times as long as high. Pronotal side largely coarsely rugose. Notauli deep and crenulate; mesoscutum punctulate, medioposteriorly rugose-reticulate with a carina; scutellum rugose-reticulate. Subalar fossa with some rugae; precoxal sulcus crenulate; disc of mesopleuron largely smooth, rugose-reticulate basomedially and posteroventrally. Metapleuron rugose-reticulate. Propodeum rugose-reticulate, with median longitudinal carina anteriorly, without transverse carina and medioposterior area.

Wings: Forewing: stigma 3.3 times as long as wide, basal posterior section of stigma 1.1 times apical posterior section of stigma; r-rs: 3/Rs: 4/Rs= 1: 0.76: 6.2; 2/Rs: 3/Rs: r-m: 2/M= 1: 0.46: 0.79: 0.89; m-cu: 2/Rs+M= 2.0: 1; 1cu-a postfurcal, 1/Cu: 2/Cu= 0.13: 1. Hindwing: r-m: 1/M= 0.83: 1; 1/M: Cu&cu-a= 1.2: 1.

Hind leg: Coxa rugose dorsobasally. Lengths of femur, tibia and basitarsus 4.0, 8.3 and 7.4 times their width, respectively; tibia 1.6 times as long as femur; inner and outer spurs of tibia, 0.33 and 0.27 times as long as basitarsus, respectively.

Metasoma: T1 1.1 times as long as wide apically, costate, dorsal carinae rather distinct in basal 0.9. T2+3 1.3 times as long as wide, T2 costulate basally. Ovipositor sheath 0.72 times as long as forewing.

Color: Black; palpi blackish brown. Antenna blackish brown; basal two flagellomeres lighter. Wings hyaline, stigma and veins dark brown. Legs brown; coxa and metatibia (except base) blackish brown . Ovipositor sheath dark brown.

Lengths: Body 4.5 mm, antenna 4.0 mm, forewing 4.5 mm, ovipositor sheath 3.3 mm.

Male: Similar to female; antenna 31-segmented.

Holotype: ♀, Sungkang, XI.1985 (KSL). Paratypes: Sungkang, 1♀2♂, X.1984 (KSL & KCC); 1♂, XI.1985 (KSL).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species differs from *A. punctus* sp. n. by the following combination of charactes: gena and scutellum rugose-reticulate, and palpi blackish brown.

Etymology: *Rugosus* means wrinkle in Latin, refers to its gena rugose-reticulate.

Genus *BAEACIS* Foerster

Baeacis Foerster, 1878. Verh. naturh. Ver. preuss. Rheinl. 35:70.Type species: *Aspigonus abietis* Ratzeburg, by subsequent designation, designated by Viereck, 1914. - Viereck, 1914. Bull. U.S. natn. Mus. 83:18. - Watanabe, 1972. Kontyu, 40(1):20.

The genus *Baeacis* contains 17 species in the world. Two new species from Taiwan are described in this paper.

Key to species of the genus *Baeacis* from Taiwan

1. Ovipositor sheath 0.45 times as long as forewing , blackish brown throughout; antenna 31-segmented; T1 1.3 times as long as wide apically ····· *improcerus* sp. n.
-. Ovipositor sheath 1.7 times as long as forewing, yellow apically; antenna 44-segmented; T1 1.6 times as long as wide apically ····· *validus* sp. n.

***Baeacis improcerus* sp. n.**

(Figs. 3, 14, 25, 36, 47, 58, 69, 90, 106)

Female: Head: 1.8 times as wide as long and 1.3 times wider than mesonotum. Eye 1.1 times as long as temple. Gena and vertex punctulate; frons largely punctulate, glabrous medially. POL: OD: OOL=1: 0.92: 3.7. Face 0.43 times as high as wide and 1.7 times as wide as eye height and 0.69 times as wide as head, punctulate; clypeus puncticulate. Tentorial index 1.8, malar space 0.86 times basal width of mandible. Antenna 31-segmented; F1 1.4 times as long as F2; F1, F2 and penultimate flagellomere 2.4, 1.6 and 1.5 times their width, respectively.

Mesosoma: 1.5 times as long as high. Pronotal side largely foveolate dorsally, medially crenulate, ventrally largely smooth. Notauli deep and crenulate, mesoscutum rather punctulate, scutellum puncticulate. Subalar fossa reticulate; precoxal sulcus crenulate; disc of mesopleuron largely puncticulate, reticulate dorsomedially. Metapleuron rather smooth dorsally, rugose-reticulate ventrally. Propodeum rugose-reticulate; without median longitudinal carina, transverse carina and medioposterior area.

Wings: Forewing: stigma 2.5 times as long as wide, basal posterior section of stigma 1.1 times apical posterior section of stigma; r-rs: 3/Rs: 4/Rs= 1: 3.1: 10.0; 2/Rs: 3/Rs: r-m: 2/M= 1: 0.88: 1.0: 0.80; m-cu: 2/Rs+M = 1.4: 1; 1cu-a postfurcal, 1/Cu: 2/Cu= 0.33: 1. Hindwing: r-m: 1/M= 0.81: 1; 1/M: Cu&cu-a= 1.1: 1.

Hind leg: Coxa smooth. Lengths of femur, tibia and basitarsus 4.1, 7.6 and 5.4 times their width, respectively; tibia 1.4 times as long as femur; inner and outer spurs of tibia, 0.44 and 0.41 times as long as basitarsus, respectively.

Metasoma: T1 1.3 times as long as wide apically; rugose-reticulate, basally rather smooth between dorsal carinae; dorsal carinae rather distinct in basal 0.5. T2+3 0.80 times as long as wide, smooth. Ovipositor sheath 0.45 times as long as forewing.

Color: Black; palpi dark brown, tegula yellowish brown. Antenna blackish brown. Wings hyaline, stigma and veins dark brown. Legs brownish yellow; metatibia (except base) and metatarsus dark brown. Ovipositor sheath blackish brown.

Lengths: Body 3.4 mm, antenna 2.9 mm, forewing 3.2 mm, ovipositor sheath 1.4 mm.

Male: Unknown.

Holotype: ♀, Tsuifeng, 1-3.VIII.1981 (TL & WST). Paratype: Tsuifeng, 1♀, VIII.1984 (KSL & KCC).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species differs from *B. validus* sp. n. by the following combination of charactes: antenna 31-segmented, frons smooth medioventrally, T1 1.3 times as long as wide apically and the ovipositor sheath shorter than body length.

Etymology: *Improcerus* means short, refers to its ovipositor sheath shorter than body length.

***Baeacis validus* sp. n.**

(Figs. 4, 15, 26, 37, 48, 59, 70, 79, 91, 109)

Female: Head: 1.7 times as wide as long and 1.4 times wider than mesonotum. Eye 1.4 times as long as temple. Gena punctulate; frons largely punctulate, medioventrally with carinae; vertex puncticulate. POL: OD: OOL=1: 1.8: 6.0. Face 0.48 times as high as wide and 1.3 times as wide as eye height and 0.59 times as wide as head, densely punctate; clypeus densely punctate. Tentorial index 1.2, malar space 0.74 times basal width of mandible. Antenna 41-44-segmented; F1 1.1 times as long as F2; F1, F2 and penultimate flagellomere 3.0, 3.0 and 1.1 times their width, respectively.

Mesosoma: 1.5 times as long as high. Pronotal side largely smooth, medially foveate, densely punctate posteriorly. Notauli deep and crenulate; mesoscutum punctulate, middle of mesoscutum reticulate apically; scutellum rather punctulate. Subalar fossa foveate; precoxal sulcus crenulate; disc of mesopleuron largely punctulate. Metapleuron punctulate dorsally, reticulate-rugose ventrally. Propodeum coarsely rugose-reticulate; without median longitudinal carina, transverse carina and medioposterior area.

Wings: Forewing: stigma 3.0 times as long as wide, basal posterior section of stigma 1.1 times apical posterior section of stigma; r-rs: 3/Rs: 4/Rs= 1: 2.6: 7.1; 2/Rs: 3/Rs: r-m: 2/M= 1: 1.1: 0.95: 0.98; m-cu: 2/Rs+M= 2.7: 1; 1cu-a postfurcal, 1/Cu: 2/Cu= 0.34: 1. Hindwing: r-m: 1/M= 1.0: 1; 1/M: Cu&cu-a= 0.93: 1.

Hind leg: Coxa smooth. Lengths of femur, tibia and basitarsus 4.3, 10.6 and 9.6 times their width, respectively; tibia 1.6 times as long as femur; inner and outer spurs of tibia, 0.26 and 0.22 times as long as basitarsus, respectively.

Metasoma: T1 1.6 times as long as wide apically, basally rather smooth between dorsal carinae, posteriorly more or less costate to rugose; dorsal carinae rather distinct in basal 0.8. T2+3 1.2 times as long as wide, smooth. Ovipositor sheath 1.7 times as long as forewing.

Color: Black; palpi, tegula and metasoma beyond T1 dark brown. Antenna blackish brown. Wings hyaline, stigma and veins dark brown. Legs dark brown to blackish brown; tibiae yellowish brown, tarsi brownish yellow. Ovipositor sheath blackish brown, yellow apically.

Lengths: Body 7.9 mm, antenna 7.1 mm, forewing 5.7 mm, ovipositor sheath 9.7 mm.

Male: Unknown.

Holotype: ♀, Lienhuachih, VII.1984 (KSL & KCC). Paratype: Hualien, 1♀, 20.VII-4.VIII.1919 (TO, JS, KM & MY).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species differs from *B. improcerus* sp. n. by the following combination of charactes: antenna 44-segmented; frons with carinae medioventrally, T1 1.6 times as long as wide apically and the ovipositor sheath longer than body length.

Etymology: *Validus* means strong, refers to its frons strongly depressed medially.

Genus *DIOSPILUS* Haliday

Diospilus Haliday, 1833. Ent. Mag. 1:262. Type species: *Diospilus oleraceus* Haliday, by monotypy. - Watanabe, 1972. Kontyu 40(1):21.

Allochromus Marshall, 1902. Agriculture prat. Pays chauds 1:643. Type species: *Allochromus trimeroderi* Marshall, by monobtypy.

The genus *Diospilus* contains 39 species in the world. Four new species from Taiwan are described in this paper.

Key to species of the genus *Diospilus* from Taiwan

1. Ovipositor sheath 0.17-0.36 times as long as forewing ····· 2
-. Ovipositor sheath 0.73-0.79 times as long as forewing ····· 3
2. Ovipositor sheath 0.17 times as long as forewing; metatibia largely dark brown ····· *taiwanensis* sp. n.
-. Ovipositor sheath 0.36 times as long as forewing; metatibia only slightly darker apically ····· *curtus* sp. n.
3. Body dark brown; eye 1.4 times as long as temple; tentorial index 1.2 ····· *nantouensis* sp. n.
-. Body black; eye 0.9 times as long as temple; tentorial index 0.9 ····· *niger* sp. n.

Diospilus curtus sp. n.

(Figs. 5, 16, 27, 38, 49, 60, 71, 92, 105)

Female: Head: 1.7 times as wide as long and 1.3 times wider than mesonotum. Eye 1.0 times as long as temple. Gena and vertex rather punctulate; frons rather punctulate laterally, glabrous medially. POL: OD: OOL =1: 0.80: 2.8. Face 0.48 times as high as wide and 1.5 times as wide as eye height and 0.62 times as wide as head, punctulate; clypeus rather punctulate. Tentorial index 0.75, malar space 0.70 times basal width of mandible. Antenna 23-24-segmented; F1 1.2 times as long as F2; F1, F2 and penultimate flagellomere 2.3, 1.9 and 1.3 times their width, respectively.

Mesosoma:1.4 times as long as high. Pronotal side largely smooth, crenulate medially and posteriorly. Notauli foveate, mesoscutum punctulate, scutellum rather punctulate. Subalar fossa weakly crenulate; precoxal sulcus narrow, crenulate; disc of mesopleuron puncticulate dorsally, glabrous ventrally. Metapleuron largely smooth, with carinae ventrally. Propodeum largely smooth; with median longitudinal carina, transverse carina and medioposterior area.

Wings: Forewing: stigma 2.5 times as long as wide, basal posterior section of stigma 0.89 times apical posterior section of stigma; r-rs: 3/Rs: 4/Rs= 1: 4.6: 16.0; 2/Rs: 3/Rs: r-m: 2/M= 1: 0.94: 1.0: 0.88; m-cu: 2/Rs+M = 1.9: 1; 1cu-a postfurcal, 1/Cu: 2/Cu= 0.26: 1. Hindwing: r-m: 1/M= 0.83: 1; 1/M: Cu&cu-a= 1.2: 1.

Hind leg: Coxa smooth. Lengths of femur, tibia and basitarsus 4.1, 6.4 and 4.5 times their width, respectively; tibia 1.4 times as long as femur; inner and outer spurs of tibia subequal, 0.44 times as long as basitarsus.

Metasoma ; T1 1.2 times as long as wide apically; largely rugose to rugose-reticulate, smooth basally; dorsal carinae rather distinct in basal 0.8. T2+3 0.65 times as long as wide, smooth. Ovipositor sheath 0.36 times as long as forewing.

Color: Blackish brown; palpi and tegula yellowish brown. Antenna dark brown. Wings hyaline, stigma dark brown, veins yellow. Legs yellowish brown, metatibia apically and metatarsus slightly darker. Ovipositor sheath dark brown.

Lengths: Body 2.1 mm, antenna 2.0 mm, forewing 2.3 mm, ovipositor sheath 0.83 mm.

Male: Unknown.

Holotype: ♀, Wushe, 7.V.1984 (KCC & CCP). Paratype: Tsuifeng, 1♀, X.1985 (KSL).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species is close to *D. taiwanensis* sp. n., but differs from it by the following combination

of characters: ovipositor sheath about 0.36 times as long as forewing length, eye 1.0 times as long as temple, tentorial index 0.75, malar space 0.70 times basal width of mandible and the metatibia lighter.

Etymology: *Curtus* means short, refers to its ovipositor sheath short.

***Diospilus nantouensis* sp. n.**

(Figs. 6, 17, 28, 39, 50, 61, 72, 93, 107)

Female: Head: 1.5 times as wide as long and 1.4 times wider than mesonotum. Eye 1.4 times as long as temple. Gena and vertex puncticulate; frons puncticulate laterally, glabrous medially. POL: OD: OOL=1: 1.3: 4.3. Face 0.46 times as high as wide and 1.5 times as wide as eye height and 0.64 times as wide as head, punctulate, with rugae near toruli; clypeus sparsely punctate. Tentorial index 1.2, malar space 0.75 times basal width of mandible. Antenna 24-27-segmented; F1 1.2 times as long as F2; F1, F2 and penultimate flagellomere 3.5, 3.0 and 1.2 times their width, respectively.

Mesosoma: 1.4 times as long as high. Pronotal side largely smooth; crenulate medially. Notauli foveate, mesoscutum punctulate, scutellum puncticulate. Subalar fossa rather crenulate; precoxal sulcus narrow, crenulate; disc of mesopleuron largely puncticulate. Metapleuron largely smooth, with carinae ventrally. Propodeum largely smooth; with median longitudinal carina, transverse carina, without distinct medioposterior area.

Wings: Forewing: stigma 2.7 times as long as wide, basal posterior section of stigma 1.0 times apical posterior section of stigma; r-rs: 3/Rs: 4/Rs= 1: 3.4: 15.4; 2/Rs: 3/Rs: r-m: 2/M= 1: 0.65: 0.88: 0.69; m-cu: 2/Rs+M= 2.3: 1; 1cu-a postfurcal, 1/Cu: 2/Cu= 0.20: 1. Hindwing: r-m: 1/M= 0.78: 1; 1/M: Cu&cu-a= 1.3: 1.

Hind leg: Coxa smooth. Lengths of femur, tibia and basitarsus 5.0, 8.7 and 5.6 times their width, respectively; tibia 1.3 times as long as femur; inner and outer spurs of tibia, 0.36 and 0.32 times as long as basitarsus, respectively.

Metasoma: T1 1.0 times as long as wide apically, more or less rugulose to rugose, dorsal carinae rather distinct in basal 0.8. T2+3 1.1 times as long as wide, smooth. Ovipositor sheath 0.79 times as long as forewing.

Color: Dark brown; head blackish brown, palpi, tegula, pronotum and T2 yellowish brown. Antenna dark brown. Wings hyaline, stigma and veins dark brown. Legs dark brown to blackish brown; tibiae yellowish brown, tarsi brownish yellow. Ovipositor sheath blackish brown.

Lengths: Body 2.4 mm, antenna 3.3 mm, forewing 2.9 mm, ovipositor sheath 2.3 mm.

Male: Unknown.

Holotype: ♀, Meifeng, VI.1984 (KSL & KCC). Paratypes: Meifeng, 1♀, 2-4.VI.1980 (LYC & CCC); 1♀, 7-9.V.1981 (KSL & SCL); 7♀, VI, 2♀, VIII, 2♀, V.1984 (KSL & KCC); 1♀, X.1985 (KSL). Sungkang, 1♀, 6.VIII.1984 (KSL); 1♀, X.1984 (KSL & KCC); 1♀, X.1985 (KSL). Taipinshan, 1♀, 26-28.VII.1983 (LYC). Tsuifeng, 1♀, VIII, 1♀, XI.1984 (KSL & KCC); 1♀, IX.1985; & 8♀, X.1985 (KSL).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species is close to *D. niger* sp. n., but differs from it by the body dark brown, eye 1.4 times as long as temple, and tentorial index 1.2.

Etymology: Named after Nantou.

***Diospilus niger* sp. n.**

(Figs. 7, 18, 29, 40, 51, 62, 73, 80, 94, 110)

Female: Head: 1.6 times as wide as long and 1.3 times wider than mesonotum. Eye 0.94 times as long as temple. Gena and vertex punctulate; frons punctulate laterally, glabrous medially. POL: OD: OOL=1: 0.69: 2.3. Face 0.39 times as high as wide and 1.9 times as wide as eye height and 0.69 times as wide as head, densely punctate; clypeus rather punctulate. Tentorial index 0.93, malar space 0.69 times basal width of mandible. Antenna 22-27-segmented; F1 1.3 times as long as F2; F1, F2 and penultimate flagellomere 2.9, 2.2 and 1.4 times their width, respectively.

Mesosoma: 1.4 times as long as high. Pronotal side largely smooth, crenulate medially and posteriorly. Notauli foveate; mesoscutum punctulate, scutellum puncticulate. Subalar fossa slightly crenulate; precoxal sulcus narrow, crenulate; disc of mesopleuron rather punctulate dorsally, glabrous ventrally. Metapleuron largely smooth, with carinae ventrally. Propodeum largely smooth; with median longitudinal carina, transverse carina, without medioposterior area.

Wings: Forewing: stigma 2.5 times as long as wide, basal posterior section of stigma 0.88 times apical posterior section of stigma; r-rs: 3/Rs: 4/Rs= 1: 3.6: 13.2; 2/Rs: 3/Rs: r-m: 2/M= 1: 0.75: 0.92: 0.79; m-cu: 2/Rs+M= 3.6: 1; 1cu-a postfurcal, 1/Cu: 2/Cu= 0.16: 1. Hindwing: r-m: 1/M= 1.1: 1; 1/M: Cu&cu-a= 1.1: 1.

Hind leg: Coxa smooth. Lengths of femur, tibia and basitarsus 3.8, 6.5 and 4.4 times their width, respectively; tibia 1.3 times as long as femur; inner and outer spurs of tibia subequal, 0.45 times as long as basitarsus.

Metasoma: T1 0.96 times as long as wide apically, more or less rugose or costate, dorsal carinae rather distinct in basal 0.7. T2+3 0.88 times as long as wide, smooth. Ovipositor sheath 0.76 times as long as forewing.

Color: Black; palpi and tegula brownish yellow, pronotum yellowish brown. Antenna dark brown, scape and pedicel brownish yellow to brown. Wings hyaline, stigma and veins dark brown. Legs brownish yellow. Ovipositor sheath blackish brown.

Lengths : Body 2.8 mm, antenna 2.6 mm, forewing 2.8 mm, ovipositor sheath 2.1 mm.

Male: Unknown.

Holotype: ♀, Meifeng, 22-26.VI.1983 (KSL & SCL). Paratypes: Meifeng, 1♀, 2-4.VI.1980 (LYC & CCC); 1♀, 26.VIII.1980 (KSL & CHW); 1♀, 24-26.VI.1981 (KSL & WST); 1♀, 22-26.VI.1983 (KSL & SCL); 1 ♀, VI, 2♀, VII,10♀, VIII, & 2♀, IX.1984 (KSL & KCC). Sungkang, 2♀, X, & 2♀, XI.1984 (KSL & KCC); 2♀, IX, & 3♀, X.1985 (KSL). Tayuling, 10♀, 9-16.VI.1980 (KSL & BHC). Tsuifeng, 1♀, 16.VII.1982 (SCL & CNL); 2♀, VII, 9♀, VIII, & 1♀, IX.1984 (KSL & KCC); 1♀, 12-14.IX.1984 (KSL & SCL); 1♀, X.1984 (KSL & KCC); 7♀, IX, & 3♀, X.1985 (KSL). Tungpu, 1♀, 20-22.VI.1980 (CCC); 5♀, 18-23.XI.1981 (TL & WST); 4♀, XI, & 1♀, XII.1985 (KSL).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species is close to *D. nantouensis* sp. n., but differs from it by the body black, eye 0.94 times as long as temple, and tentorial index 0.93.

Etymology: *Niger* means black, refers to its body black.

***Diospilus taiwanensis* sp. n.**

(Figs. 8, 19, 30, 41, 52, 64, 74, 95, 111)

Female: Head: 1.8 times as wide as long and 1.4 times wider than mesonotum. Eye 1.3 times as long as

temple. Gena, frons and vertex punctulate; frons glabrous medially. POL: OD: OOL=1: 0.73: 2.7. Face 0.45 times as high as wide and 1.4 times as wide as eye height and 0.62 times as wide as head, punctulate, more or less with carinae; clypeus punctulate. Tentorial index 0.82, malar space 0.56 times basal width of mandible. Antenna 22-27-segmented; F1 1.2 times as long as F2; F1, F2 and penultimate flagellomere 2.8, 2.3 and 1.6 times their width, respectively.

Mesosoma: 1.3 times as long as high. Pronotal side largely smooth, reticulate medially and posteriorly. Notauli foveate; mesoscutum rather punctulate; scutellum puncticulate. Subalar fossa slightly crenulate; precoxal sulcus narrow, foveate; disc of mesopleuron largely puncticulate. Metapleuron puncticulate dorsally, reticulate-rugose ventrally. Propodeum largely smooth; with median longitudinal carina, transverse carina and medioposterior area.

Wings: Forewing: stigma 2.5 times as long as wide, basal posterior section of stigma 1.0 times apical posterior section of stigma; r-rs: 3/Rs: 4/Rs= 1: 3.2: 12.2; 2/Rs: 3/Rs: r-m: 2/M= 1: 0.73: 0.82: 0.82; m-cu: 2/Rs+M= 2.8: 1; 1cu-a postfurcal, 1/Cu: 2/Cu= 0.20: 1. Hindwing: r-m: 1/M= 0.80: 1; 1/M: Cu&cu-a= 1.4: 1.

Hind leg: Coxa smooth. Lengths of femur, tibia and basitarsus 4.1, 7.3 and 4.8 times their width, respectively; tibia 1.3 times as long as femur; inner and outer spurs of tibia subequal, 0.42 times as long as basitarsus.

Metasoma: T1 1.2 times as long as wide apically, basally rather smooth, posteriorly rather rugose; dorsal carinae almost distinct in whole length. T2+3 0.84 times as long as wide, smooth. Ovipositor sheath 0.17 times as long as forewing.

Color: Black; palpi yellow, tegula brownish yellow. Antenna blackish brown, scape brownish yellow. Wings hyaline, stigma dark brown, veins yellow. Legs brownish yellow, metatibia (except basally) and metatarsus dark brown. Ovipositor sheath dark brown.

Lengths: Body 2.1 mm, antenna 1.9 mm, forewing 2.4 mm, ovipositor sheath 0.40 mm.

Male: Unknown.

Holotype: ♀, Meifeng, IX.1984 (KSL & KCC). Paratypes: Meifeng, 4♀, VIII, 4♀, IX, & 4♀, X.1984 (KSL & KCC); 1♀, X.1985 (KSL). Sungkang, 4♀, X.1985 (KSL). Tsuifeng, 3♀, VIII.1984 (KSL & KCC); 1 ♀, 15-16.VIII.1984 (KCC); 1♀,X.1984 (KSL & KCC); 1♀, X. 1985 (KSL). Tungpu, 1♀, 18-21.X.1982 (KCC & SCL); 1♀, 23-27.VII.1984 (KCC & CHY).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species is close to *D. curtus* sp. n., but differs from it by the following combination of characters: ovipositor sheath about 0.17 times as long as forewing length, eye 1.3 times as long as temple, tentorial index 0.82, malar space 0.56 times basal width of mandible and the metatibia darker.

Etymology: The specific name is derived from Taiwan.

Tribe *HELCONINI* Foerster

Van Achterberg [2] provided diagnosis for the tribe Helconini. This tribe contains 14 genera in the world. It is recorded from Taiwan for the first time in this paper.

Key to genera of the tribe Helconini from Taiwan

1. Metafemur with ventral tooth 2
-. Metafemur without ventral tooth ..... *Helcon* Nees

2. R1 cell of hindwing distinctly widened apically; occipital carina connected near apex of hypostomal carina below level of mandible base; antenna with white band ····· *Wroughtonia* Cameron
-. R1 cell of hindwing parallel-sided or slightly widened apically; occipital carina connected to hypostomal carina distinctly above level of base of mandible; antenna without white band ····· *Helconidea* Viereck

Genus *HELCON* Nees

Helcon Nees, 1812. Mag. Ges. nat. Fr. Berl. 6:216. Type species: *Helcon tardator* Nees, by subsequent designaton, designated by Lepeletier de St. Fargeau & Audinet-Serville, 1827. - Lepeletier de St. Fargeau & Audinet-Serville, 1827 in Olivier: Encycl. method. 10:40. - Watanabe, 1972. Ins. Mats. 35(1):2. - van Achterberg, 1987. Zool. Med. Leiden 61(18):265.

Coelostephanus Kieffer, 1911. Annls. Soc. ent. Fr. 80:232. Type species: *Coelostephanus rufus* Kieffer, by monotypy.

Edyia Cameron, 1905. J. Straits Brch R. Asiat. Soc. 44:108. Type species: *Edyia annulicornis* Cameron, by monotypy.

Gymnoscelus Foerster, 1862. Verh. naturh. Ver. preuss. Rheinl. 19:255. Type species: *Helcon tardator* Nees, by monotypy.

The genus *Helcon* contains 19 species in the world. In this paper 2 species are added to the *Helcon* fauna of Taiwan, of which 1 species is new to science.

Key to species of the genus *Helcon* from Taiwan

1. Antenna with whitish band; frons largely smooth laterally; metatarsus yellow ····· *albus* sp. n.
-. Antenna without whitish band; frons largely coarsely rugose laterally; metatarsus reddish brown to blackish brown ····· *claviventris* Wesmael

Helcon albus sp. n.

(Figs. 96, 108)

Female: Head: 1.5 times as wide as long and 1.2 times wider than mesonotum. Eye 1.5 times as long as temple. Gena smooth, costate near mandible; frons smooth, with some rugae near torulus; vertex smooth. POL: OD: OOL=1: 0.75: 2.1. Face 0.41 times as high as wide and 1.4 times as wide as eye height and 0.63 times as wide as head, rugose-reticulate; clypeus rugulose-reticulate. Tentorial index 1.1, malar space 1.2 times basal width of mandible. Antenna 35-segmented; F1 1.1 times as long as F2; F1, F2 and penultimate flagellomere 3.4, 3.0 and 1.5 times their width, respectively.

Mesosoma: 2.0 times as long as high. Pronotal side dorsally punctate, medially crenulate, ventrally and posteriorly rugose-reticulate. Notauli deep and crenulate; middle lobe of mesoscutum foveolate laterally, sparsely to rather densely punctate anteriorly and medially, rugose-reticulate posteriorly; lateral lobes with scattered punctures; scutellum punctate. Subalar fossa weakly crenulate; epicnemium punctate; precoxal sulcus shallow, punctate to foveolate; disc of mesopleuron largely smooth. Metapleuron coarsely rugose-reticulate. Propodeum coarsely rugose-reticulate, smooth basolaterally; with short median longitudinal carina anteriorly.

Wings: Forewing: stigma 3.2 times as long as wide, basal posterior section of stigma 1.0 times apical posterior section of stigma; r-rs: 3/Rs: 4/Rs= 1: 1.0: 5.1; 2/Rs: 3/Rs: r-m: 2/M= 1: 0.72: 0.77: 1.6; m-cu: 2/Rs+M=

0.71: 1; 1cu-a postfurcal, 1/Cu: 2/Cu= 0.20: 1. Hindwing: r-m: 1/M= 1.1: 1; 1/M: Cu&cu-a= 0.86: 1.

Hind leg: Coxa punctate, reticulate dorsally; femur densely foveate, rugose ventrally, with wide protuberance subapically. Lengths of femur, tibia and basitarsus 2.9, 9.3 and 6.3 times their width, respectively; tibia 1.4 times as long as femur; inner and outer spurs of tibia subequal, 0.27 times as long as basitarsus, respectively.

Metasoma: T1 evenly widened posteriorly, 1.1 times as long as wide apically; foveate-reticulate laterally, rugose-reticulate medially; dorsal carinae rather distinct in basal 0.6. T2+3 0.92 times as long as wide, T2 foveolate-reticulate, T3 smooth. Ovipositor sheath 1.2 times as long as forewing.

Color: Black; palpi brownish yellow, tegula and metasoma dark brown, T2 blackish brown. Antenna black; flagellomeres 9-16 white, 17th brownish yellow, apically brown. Wings hyaline, stigma and veins blackish brown. Legs brownish yellow, apical half of metafemur and apical 0.6 of metatibia dark brown. Ovipositor sheath dark brown.

Lengths: Body 7.5 mm, antenna 7.2 mm, forewing 6.8 mm, ovipositor sheath 8.0 mm.

Male: Unknown.

Holotype: ♀, Kuandauchi, 8-14.VI.1971 (Malaise trap).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species is characterized by the following combination of charactes: flagellum with white band, POL longer than OD, metatarsus yellow, and the T2 foveolate-reticulate.

Etymology: *Albus* means white, refers to its flagellomeres with white band.

***Helcon claviventris* Wesmael**

(Figs. 9, 20, 31, 42, 53, 63, 75, 83, 97, 112)

Helcon claviventris Wesmael, 1835. Nouv. Mem. Acad. Brux. 9:184. - van Achterberg, 1987. Zool. Med. Leiden 61:269.

Female: Head: 1.6 times as wide as long and 1.3 times wider than mesonotum. Eye 1.7 times as long as temple. Gena punctulate dorsally, punctate to rugose-reticulate ventrally; frons rugose-reticulate laterally, smooth medially; vertex puncticulate. POL: OD: OOL=1: 0.65: 1.2. Face 0.42 times as high as wide and 1.3 times as wide as eye height and 0.60 times as wide as head, rugose-reticulate; clypeus rugulose-reticulate. Tentorial index 1.1, malar space 1.2 times basal width of mandible. Antenna 31-33-segmented; F1 1.2 times as long as F2; F1, F2 and penultimate flagellomere 3.4, 2.9 and 1.6 times their width, respectively.

Mesosoma: 1.9 times as long as high. Pronotal side punctate dorsally, medially crenulate, ventrally rugose-reticulate. Notauli deep and crenulate; mesonotum punctulate; middle lobe of mesoscutum rugose-reticulate posteriorly. Subalar fossa weakly crenulate, more or less with punctures; epicnemium punctate; precoxal sulcus shallow, foveolate to foveate; disc of mesopleuron puncticulate. Metapleuron coarsely rugose-reticulate. Propodeum coarsely rugose-reticulate; with short median longitudinal carina anteriorly, irregular transverse carina and medioposterior area.

Wings: Forewing: stigma 2.7 times as long as wide, basal posterior section of stigma 0.93 times apical posterior section of stigma; r-rs: 3/Rs: 4/Rs= 1: 0.82: 5.5; 2/Rs: 3/Rs: r-m: 2/M= 1: 0.58: 0.77: 1.5; m-cu: 2/Rs+M = 0.96: 1; 1cu-a postfurcal, 1/Cu: 2/Cu= 0.26: 1. Hindwing: r-m: 1/M= 1.6: 1; 1/M: Cu&cu-a= 0.63: 1.

Hind leg: Coxa punctate; metafemur densely punctate, rugose ventrally, with wide protuberance subapi-

cally. Lengths of femur, tibia and basitarsus 3.3, 11.0 and 7.2 times their width, respectively; tibia 1.5 times as long as femur; inner and outer spurs of tibia 0.25 and 0.28 times as long as basitarsus, respectively.

Metasoma: T1 evenly widened posteriorly, 1.1 times as long as wide apically; medially from largely foveate to rugose-reticulate, laterally from largely smooth with some punctures to roguse-reticulate; dorsal carinae rather distinct in basal 0.4. T2+3 1.1 times as long as wide, T2 from largely smooth with some punctures to largely foveate-reticulate, T3 smooth. Ovipositor sheath 1.1 times as long as forewing.

Color: Black, metasoma more or less lighter; palpi brownish yellow, tegula blackish brown. Antenna black. Wings hyaline, stigma and veins blackish brown. Legs yellowish brown; apical half of metafemur, metatibia (except lighter basally) and most of metatarsus dark brown. Ovipositor sheath dark brown.

Lengths: Body 6.4 mm, antenna 5.9 mm, forewing 5.4 mm, ovipositor sheath 5.9 mm.

Male: Similar to female; antenna 33-34-segmented.

Specimens examined: Meifeng, 1♀, 17-22.VI.1979 (Malaise trap); 1♀, 25-27.VIII.1980 (KSL & CHW). Peitungyeanshan, 2♀, 4-15.VII.1971; 1♀, 27.IX-6.X.1971; & 1♀, 1-15.VII.1972 (Malaise trap). Tayuling, 1♀, 10-16.VI.1980 (KSL & BHC). Tungpu, 1♂, 20-22.VI.1980 (CCC); 1♂, 23-27.VII.1984 (KCC & CHY).

Distribution: Europe [2] and Taiwan (new record).

Host: Unknown.

Genus *HELCONIDEA* Viereck

Helconidea Viereck, 1914. Bull. U.S. natn. Mus. 83:67. Type species: *Helcon aequator* Nees, original designation. - van Achterberg, 1987. Zool. Med. Leiden 61(18):272.

The genus *Helconidea* contains 20 species in the world. In this paper 1 species is added to the *Helconidea* fauna of Taiwan.

Helconidea uchida (Watanabe)

(Figs. 98, 114)

Helcon (*Helcon*) *uchida* Watanabe, 1931. Ins. Mats. 6(1):25.
Wroughtonia uchida (Watanabe): Watanabe, 1972. Ins. Mats. 35(1):5.
Helconidea uchida (Watanabe): Belokobylskij, 1989. Proc. Zool. Inst. USSR Acad. Sci. 188:32.

Female: Head: 1.5 times as wide as long and 1.4 times wider than mesonotum. Eye 0.85 times as long as temple. Gena punctate, costate near mandible; frons obliquely carinate laterally; vertex punctate. POL: OD: OOL=1: 0.94: 2.4. Face 0.55 times as high as wide and 1.4 times as wide as eye height and 0.60 times as wide as head, largely rugose-reticulate, costate submedially; clypeus rugose-reticulate. Tentorial index 1.3, malar space 1.2 times basal width of mandible. Antenna 35-segmented; F1 1.1 times as long as F2; F1, F2 and penultimate flagellomere 3.6, 3.3 and 1.3 times their width, respectively.

Mesosoma: 1.7 times as long as high. Pronotal side dorsally punctate to rugose-reticulate, medially and posteriorly crenulate, ventrally rugose-reticulate. Notauli deep and crenulate; mesoscutum punctulate to punctate, middle lobe of mesoscutum rugose-reticulate posteriorly; scutellum sparsely punctate. Subalar fossa with some rugae; precoxal sulcus foveate; disc of mesopleuron largely punctulate. Metapleuron coarsely rugose-reticulate. Propodeum coarsely rugose-reticulate, smooth basolaterally; with short median longitudinal carina

anteriorly, without transverse carina, with irregular medioposterior area.

Wings: Forewing: stigma 3.3 times as long as wide, basal posterior section of stigma 0.95 times apical posterior section of stigma; r-rs: 3/Rs: 4/Rs= 1: 1.5: 7.5; 2/Rs: 3/Rs: r-m: 2/M= 1: 0.76: 0.65: 1.4; m-cu: 2/Rs+M= 1.2: 1; 1cu-a postfurcal, 1/Cu: 2/Cu= 0.21: 1. Hindwing: r-m: 1/M= 0.91: 1; 1/M: Cu&cu-a= 0.70: 1.

Hind leg: Coxa rather densely punctate; femur rather densely punctate, weakly carinate ventrally, with rather sharp protuberance subapically. Length of femur and tibia 3.7 and 11.5 times their width, respectively; tibia 1.6 times as long as femur; tarsus missing.

Metasoma: T1 1.8 times as long as wide apically; foveate or foveate-reticulate, anteriorly rather smooth between dorsal carinae; dorsal carinae rather distinct in basal 0.6. T2+3 1.3 times as long as wide, smooth. Ovipositor 2.3 times as long as forewing.

Color: Black; palpi dark brown. Antenna black. Wings faintly brownish hyaline, stigma and veins blackish brown. Legs dark brown to black.

Lengths: Body 9.7 mm, antenna 8.5 mm, forewing 5.3 mm, ovipositor 12.4 mm.

Male: Unknown.

Specimen examined: Sungkang, 1♀, 6.VIII.1984 (KSL).

Distribution: Japan [10], Taiwan (new record), and Far East of the USSR [4].

Host: Unknown.

Remarks: The specimens examined differs from the Watanabe's original description [9] by the color of tarsi dark brown to black, and the vein 3/Rs of forewing 1.5 times as long as vein r-rs.

Genus *WROUGHTONIA* Cameron

Wroughtonia Cameron, 1899. Mem. Proc. Manchr. lit. phil. Soc. 43:56. Type species: *Wroughtonia cornuta* Cameron, by monotypy. - Watanabe, 1972. Ins. Mats. 35(1):3. - Gupta & Sharma, 1976. Oriental Ins. 10(3):353. - van Achterberg, 1987. Zool. Med. Leiden 61(18):276.

Duportia Kieffer, 1921. Bull. Agr. Inst. Sci. Saigon 3:131. Type species: *Duportia cincticornis* Kieffer, by monotypy.

The genus *Wroughtonia* contains 9 species in the world. In this paper 3 species are added to the *Wroughtonia* fauna of Taiwan, of which 2 species are new to science.

Key to species of the genus *Wroughtonia* from Taiwan

1. T1 1.8 times as long as wide apically; ovipositor sheath 1.2 times as long as forewing ····· *petila* sp. n.
-. T1 1.3-1.4 times as long as wide apically; ovipositor sheath about 0.90 times as long as forewing ····· 2
2. Metafemur and metatibia mostly reddish brown; T2 smooth ····· *spinator* (Lepeletier & Audinet-Serville)
-. At least apical half of metafemur and metatibia dark brown; T2 foveolate ····· *pterolophiae* sp. n.

Wroughtonia petila sp. n.

(Figs. 11, 21, 32, 43, 54, 65, 76, 81, 85, 99, 113)

Female: Head: 1.5 times as wide as long and 1.2 times wider than mesonotum. Eye 1.5 times as long as temple. Gena punctulate, rugose near mandible; frons punctulate laterodorsally, rugose lateroventrally; vertex glabrate. POL: OD: OOL=1: 1.0: 2.3. Face 0.47 times as high as wide and 1.1 times as wide as eye height and

0.57 times as wide as head, coarsely rugose; clypeus coarsely rugose-reticulate. Tentorial index 1.1, malar space 1.0 times basal width of mandible. Antenna 38-segmented; F1 1.2 times as long as F2; F1, F2 and penultimate flagellomere 3.5, 2.9 and 1.4 times their width, respectively.

Mesosoma: 2.1 times as long as high. Pronotal side largely coarsely crenulate to rugose-reticulate, densely punctate dorsally. Notauli deep and crenulate; mesonotum rather densely punctate, mesoscutum rugose medioposteriorly. Subalar fossa foveate; precoxal sulcus slightly depressed, foveolate; disc of mesopleuron largely smooth, rather foveolate dorsally. Metapleuron rugose-reticulate. Propodeum rugose-reticulate; with short median longitudinal carina anteriorly, transverse carina and medioposterior area.

Wings: Forewing: stigma 3.8 times as long as wide, basal posterior section of stigma 0.84 times apical posterior section of stigma; r-rs: 3/Rs: 4/Rs= 1: 1.2: 6.9; 2/Rs: 3/Rs: r-m: 2/M= 1: 0.74: 0.77: 1.6; m-cu: 2/Rs+M= 0.93: 1; 1cu-a postfurcal, 1/Cu: 2/Cu= 0.17: 1. Hindwing: r-m: 1/M= 1.2: 1; 1/M: Cu&cu-a= 0.97: 1.

Hind leg: Coxa densely punctate; femur densely punctate, rugose ventrally, with sharp protuberance subapically. Lengths of femur, tibia and basitarsus 3.8, 10.5 and 7.7 times their width, respectively; tibia 1.4 times as long as femur; inner and outer spurs of tibia subequal, 0.23 times as long as basitarsus.

Metasoma: T1 1.8 times as long as wide apically; coarsely rugose, smooth at apex; dorsal carinae rather distinct in basal 0.9. T2+3 1.4 times as long as wide, smooth. Ovipositor sheath 1.2 times as long as forewing.

Color: Black; palpi brownish yellow, tegula blackish brown, metasoma beyond T1 blackish brown. Antenna blackish brown; flagellomeres 11th partly and 12th-17th white. Wings hyaline, stigma and veins blackish brown. Legs brownish yellow; coxa, femur (except base), apical half of tibia of hind leg dark brown; tarsus whitish yellow. Ovipositor sheath dark brown.

Lengths: Body 8.8 mm, antenna 8.3 mm, forewing 7.0 mm, ovipositor sheath 8.7 mm.

Male: Unknown.

Holotype: ♀, Meifeng, 22-29.VIII.1979 (Malaise trap).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species differs from the other Taiwanese *Wroughtonia* species by the T1 1.8 times as long as wide apically, and the ovipositor sheath 1.2 times as long as forewing.

Etymology: *Petila* means slender, refers to its T1 slender.

***Wroughtonia pterolophiae* sp. n.**

(Figs. 10, 22, 33, 44, 55, 66, 77, 82, 86, 101, 116)

Female: Head: 1.4 times as wide as long and 1.2 times wider than mesonotum. Eye 1.5 times as long as temple. Gena puncticulate, rugose near mandible; frons puncticulate dorsally, rugose ventrally; vertex puncticulate. POL: OD: OOL=1: 1.3: 2.6. Face 0.49 times as high as wide and 1.1 times as wide as eye height and 0.58 times as wide as head, face and clypeus coarsely rugose-reticulate. Tentorial index 0.96, malar space 0.68 times basal width of mandible. Antenna 33-segmented; F1 1.1 times as long as F2; F1, F2 and penultimate flagellomere 3.8, 3.2 and 1.2 times their width, respectively.

Mesosoma: 2.0 times as long as high. Pronotal side largely crenulate to coarsely rugose-reticulate, densely punctate dorsally. Notauli deep and crenulate; mesonotum punctulate, mesoscutum rugose medioposteriorly. Subalar fossa foveolate; precoxal sulcus almost absent, punctate; disc of mesopleuron largely smooth. Metapleuron rugose-reticulate. Propodeum weakly to strongly rugose-reticulate, basally more or less smooth; with

short median longitudinal carina anteriorly, medioposterior area ill defined to distinct, with or without transverse carina.

Wings: Forewing: stigma 3.1 times as long as wide, basal posterior section of stigma 1.1 times apical posterior section of stigma; r-rs: 3/Rs: 4/Rs= 1: 0.88: 5.8; 2/Rs: 3/Rs: r-m: 2/M= 1: 0.61: 0.72: 1.5; m-cu: 2/Rs+M = 0.65: 1; 1cu-a postfurcal, 1/Cu: 2/Cu= 0.16: 1. Hindwing: r-m: 1/M= 0.89: 1; 1/M: Cu&cu-a= 1.2: 1.

Hind leg: Coxa punctulate; femur densely punctate, rugose ventrally, with sharp protuberance subapically. Lengths of femur, tibia and basitarsus 3.7, 8.7 and 6.8 times their width, respectively; tibia 1.5 times as long as femur; inner and outer spurs of tibia subequal, 0.24 times as long as basitarsus.

Metasoma: T1 1.4 times as long as wide apically, densely punctate to foveolate, dorsal carinae rather distinct in basal 0.8. T2+3 1.0 times as long as wide, T2 rather foveolate. Ovipositor sheath 0.88 times as long as forewing.

Color: Black; palpi brownish yellow, tegula dark brown, metasoma blackish brown. Antenna dark brown; flagellomeres 9th partly and 10th-17th white. Wings hyaline, stigma and veins dark brown. Legs yellowish brown; about apical half of metafemur and apical 0.6 of metatibia dark brown; basal 0.4 of metatibia dark brown, basal 3 metatarsus segments white (except base of basitarsus dark brown), last two metatarsus segments brown. Ovipositor sheath dark brown.

Lengths: Body 7.0 mm, antenna 6.5 mm, forewing 6.4 mm, ovipositor sheath 5.7 mm.

Male: Unknown.

Holotype: ♀, Nanshanchi, 16.XII.1977 ex. *Pterolophia annulata* (SCC). Paratype: Nanshanchi, 1♀, 2.X. 1977 ex. *P. annulata* (SCC); 1♀, Same data as holotype.

Distribution: Taiwan.

Host: *Pterolophia annulata* (Chevrolat) (Cerambycidae).

Remarks: This species differs from *W. spinator* (Lepeletier & Audinet-Serville) by the apical half of metafemur and metatibia dark brown; second metasomal tergum rather foveolate.

Etymology: Named after the generic name of its host.

Wroughtonia spinator (Lepeletier & Audinet-Serville)

(Figs. 100, 115)

Helcon spinator Lepeletier de St. Fargeau & Audinet-Serville, 1827 in Olivier: Encycl. method. 10:41.

Wroughtonia spinator (Lepeletier & Audinet-Serville): Watanabe, 1972. Ins. Mats. 35:4. - van Achterberg, 1987. Zool. Med. Leiden 61:278.

Helcon annulicornis Nees, 1834. Hym. Ichn. affin. Mon. 1: 231.

Female: Head: 1.5 times as wide as long and 1.3 times wider than mesonotum. Eye 1.6 times as long as temple. Gena puncticulate to sparsely punctate, rugose near mandible; frons largely smooth, coarsely rugose lateroventrally; vertex puncticulate. POL: OD: OOL=1: 0.93: 2.9. Face 0.42 times as high as wide and 1.1 times as wide as eye height and 0.57 times as wide as head, coarsely rugose; clypeus rugulose-reticulate. Tentorial index 1.1, malar space 0.82 times basal width of mandible. Antenna 35-segmented; F1 1.1 times as long as F2; F 1, F2 and penultimate flagellomere 3.6, 3.2 and 1.7 times their width, respectively.

Mesosoma: 1.8 times as long as high. Pronotal side punctate dorsally, medially crenulate, ventrally rugose-reticulate, posteriorly coarsely rugose. Notauli deep and crenulate; mesonotum punctate, mesoscutum rugose-

reticulate medioposteriorly. Subalar fossa crenulate; precoxal sulcus shallow, foveate ventrally; disc of mesopleuron punctate to foveate dorsally, glabrate ventrally. Metapleuron reticulate. Propodeum rugose-reticulate; with short median longitudinal carina anteriorly and medioposterior area, without distinct transverse carina.

Wings: Forewing: stigma 3.0 times as long as wide, basal posterior section of stigma 1.2 times apical posterior section of stigma; r-rs: 3/Rs: 4/Rs= 1: 0.89: 5.0; 2/Rs: 3/Rs: r-m: 2/M= 1: 0.62: 0.70: 1.5; m-cu: 2/Rs+M = 0.83: 1; 1cu-a postfurcal, 1/Cu: 2/Cu= 0.20: 1. Hindwing: r-m: 1/M= 1.7: 1; 1/M: Cu&cu-a= 0.76: 1.

Hind leg: Coxa densely punctate; femur foveate-reticulate, rugose ventrally, with sharp protuberance subapically. Lengths of femur and tibia 3.6 and 9.7 times their width, respectively; tibia 1.5 times as long as femur; tarsus missing.

Metasoma: T1 1.3 times as long as wide apically; densely foveate laterally, rugose-reticulate medially; dorsal carinae rather distinct in basal 0.8. T2+3 0.88 times as long as wide, smooth. Ovipositor sheath 0.89 times as long as forewing.

Color: Dark brown, metasoma lighter; palpi and tegula yellowish brown. Antenna dark brown; flagellomeres 9th-17th white. Wings faintly brownish hyaline, stigma and veins dark brown. Legs reddish brown; metafemur at apex dark brown, metatibia apically brown. Ovipositor sheath dark brown.

Lengths: Body 9.2 mm, antenna 9.0 mm, forewing 8.5 mm, ovipositor sheath 7.5 mm.

Male: Unknown.

Specimens examined: Puli, 1♀, 10.IV.1919 (MM).

Distribution: Europe, Japan [2,10] and Taiwan (new record).

Host: Unknown.

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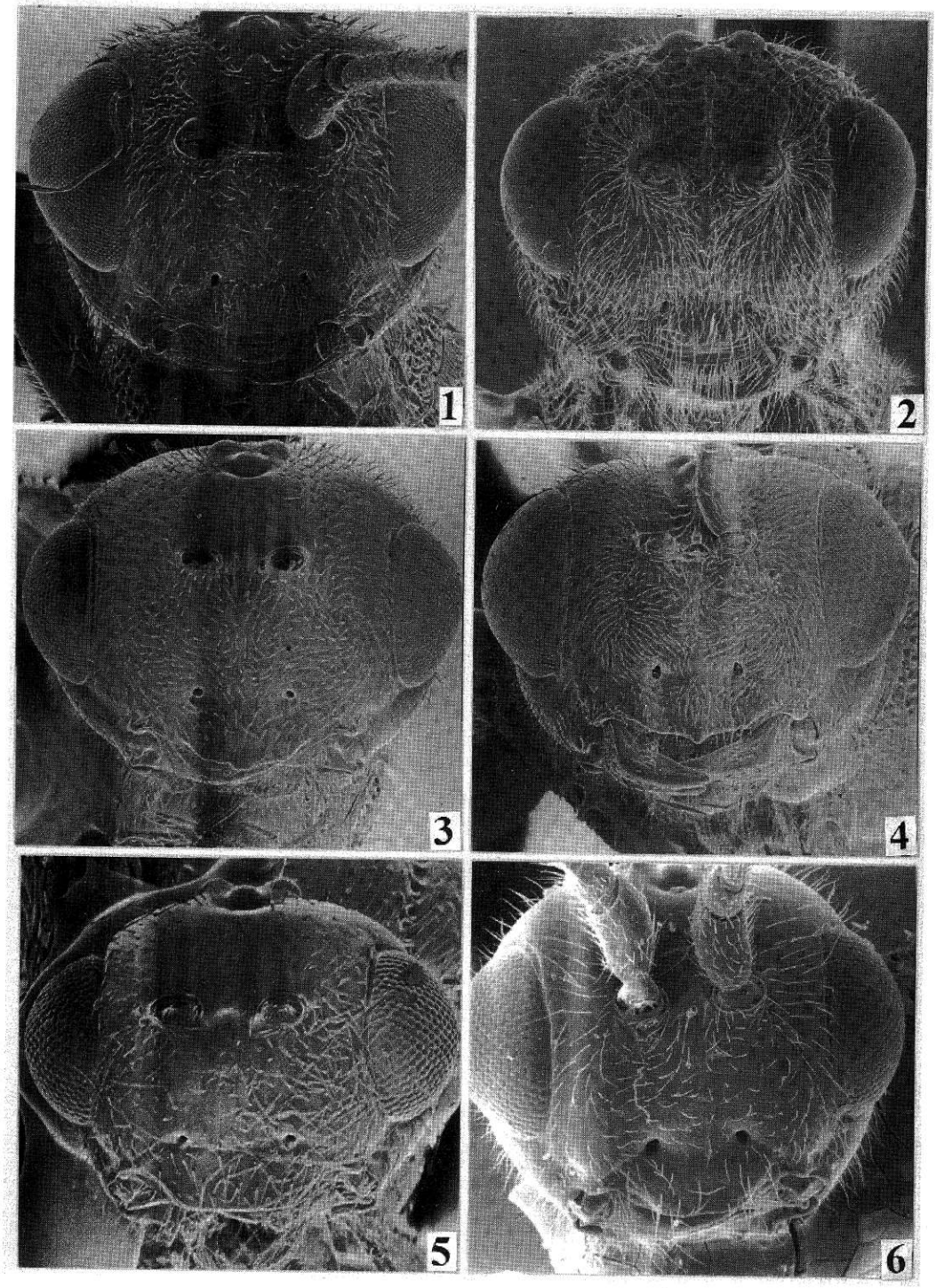
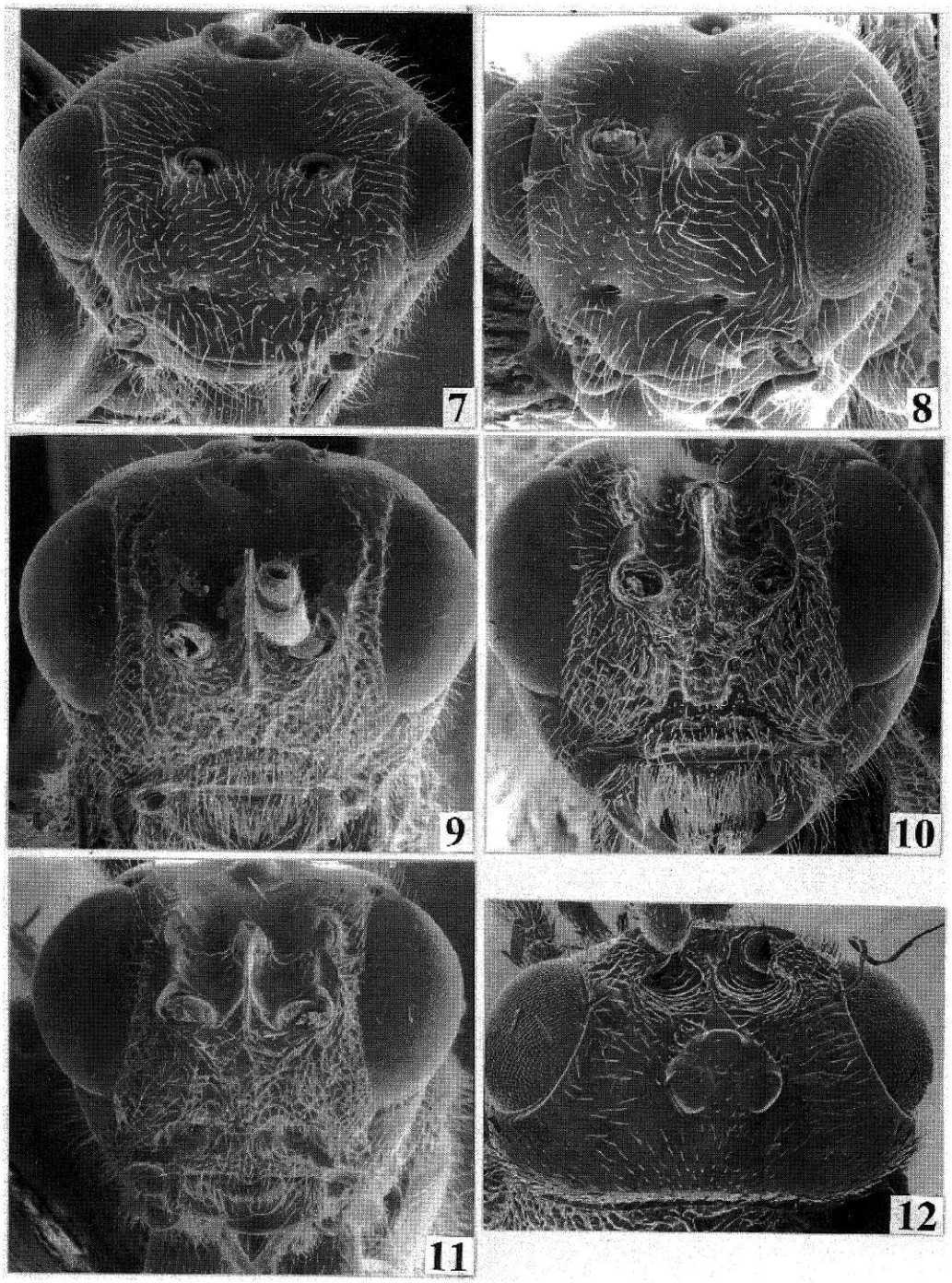


Figs. 1-6. Frontal view of heads of Helconinae ♀: 1, *Aspicolpus punctus* sp. n.; 2, *Aspicolpus rugosus* sp. n.; 3, *Baeacis improcerus* sp. n.; 4, *Baeacis validus* sp. n.; 5, *Diospilus curtus* sp. n.; 6, *Diospilus nantouensis* sp. n.



Figs. 7-11. Frontal view of heads of Helconinae ♀ : 7, *Diospilus niger* sp. n.; 8, *Diospilus taiwanensis* sp. n.; 9, *Helcon claviventris* Wesmael; 10, *Wroughtonia pterolophiae* sp. n.; 11, *Wroughtonia petila* sp. n.

Fig. 12. Dorsal view of head of Helconinae ♀: 12, *Aspicolpus punctus* sp. n.

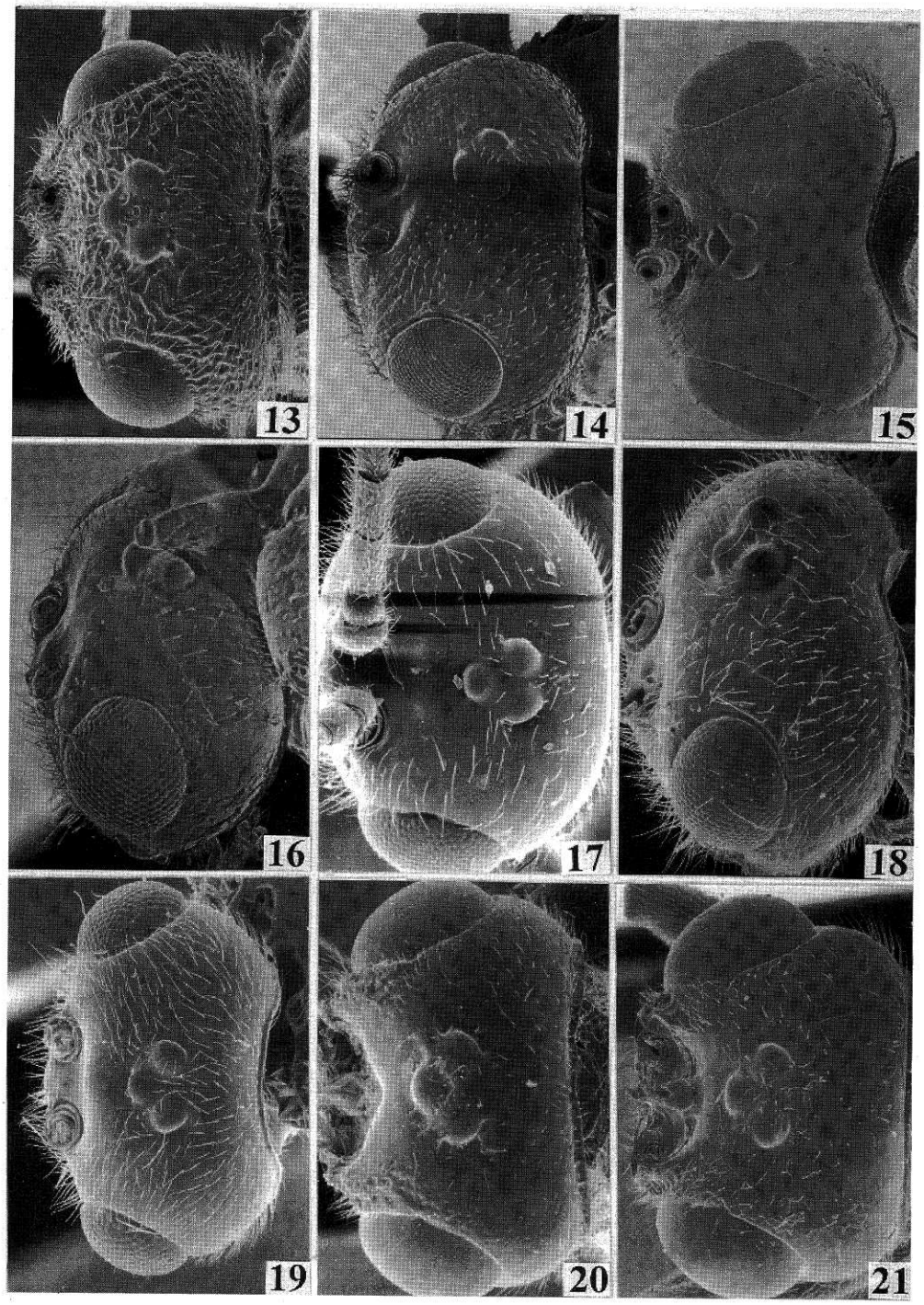


Fig. 13-21. Dorsal view of heads of Helconinae ♀: 13, *Aspicolpus rugosus* sp. n.; 14, *Baeacis improcerus* sp. n.; 15, *Baeacis validus* sp. n.; 16, *Diospilus curtus* sp. n.; 17, *Diospilus nantouensis* sp. n.; 18, *Diospilus niger* sp. n.;19, *Diospilus taiwanensis* sp. n.; 20, *Helcon claviventris* Wesmael; 21, *Wroughtonia petila* sp. n.

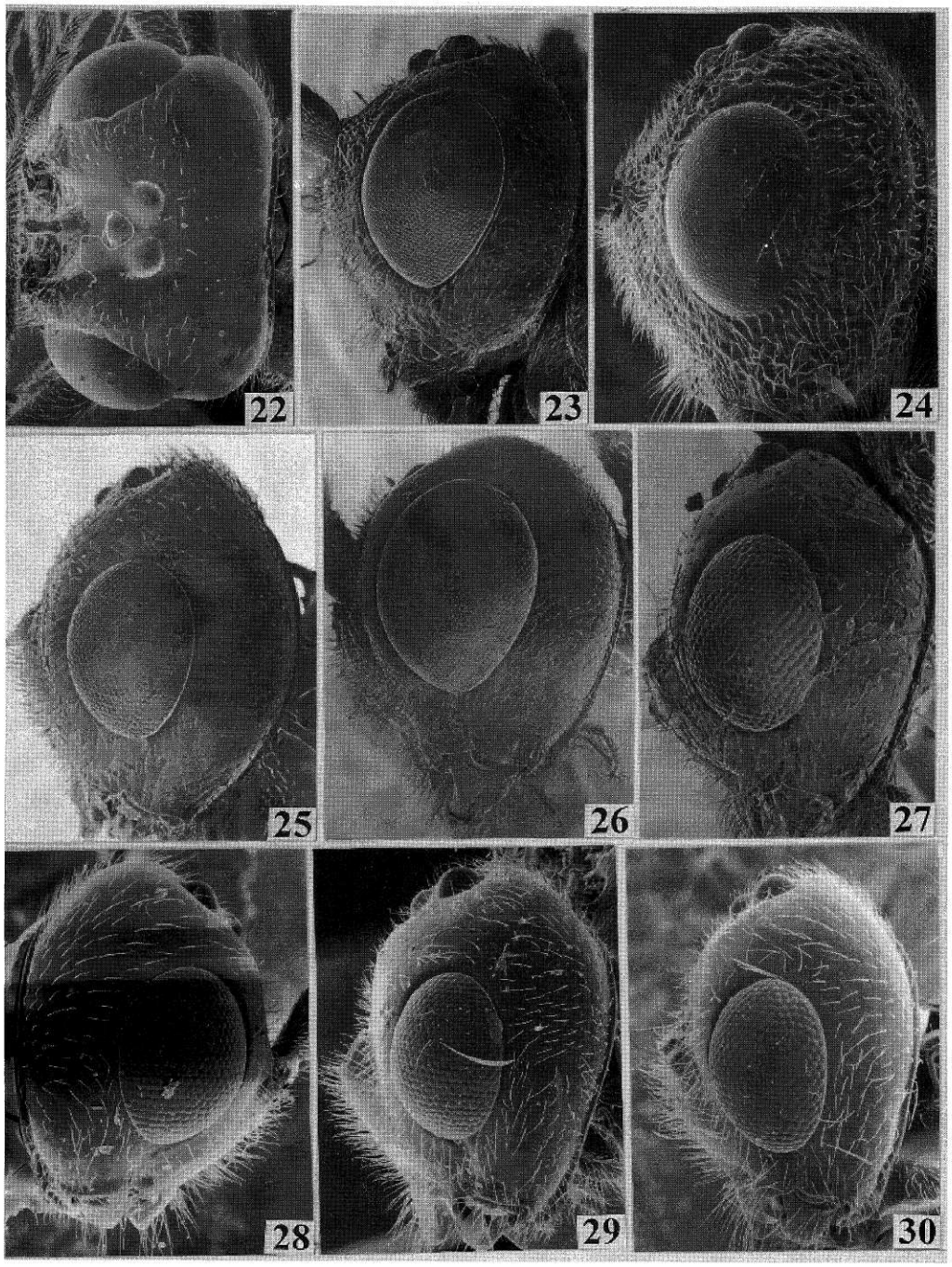
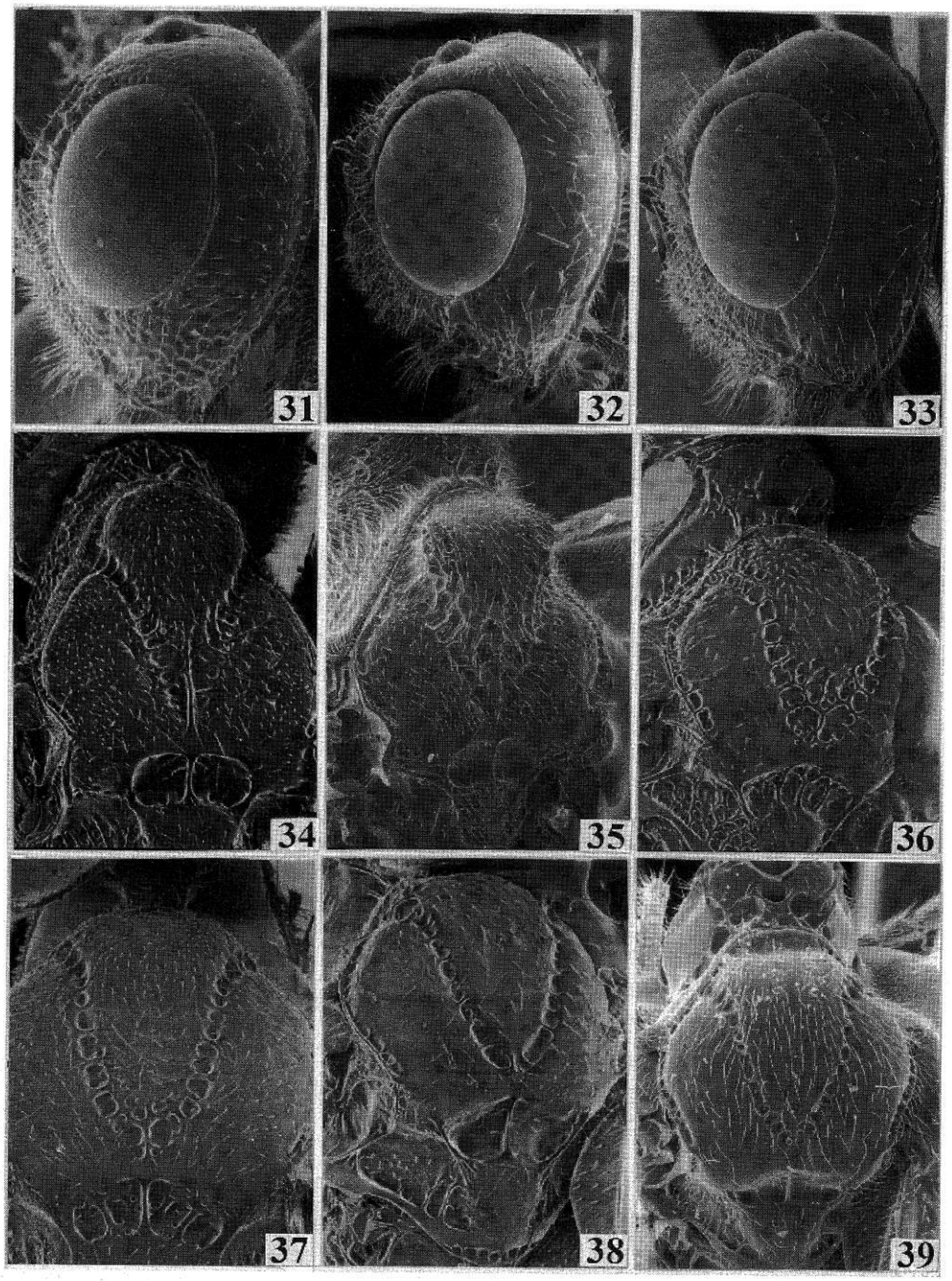


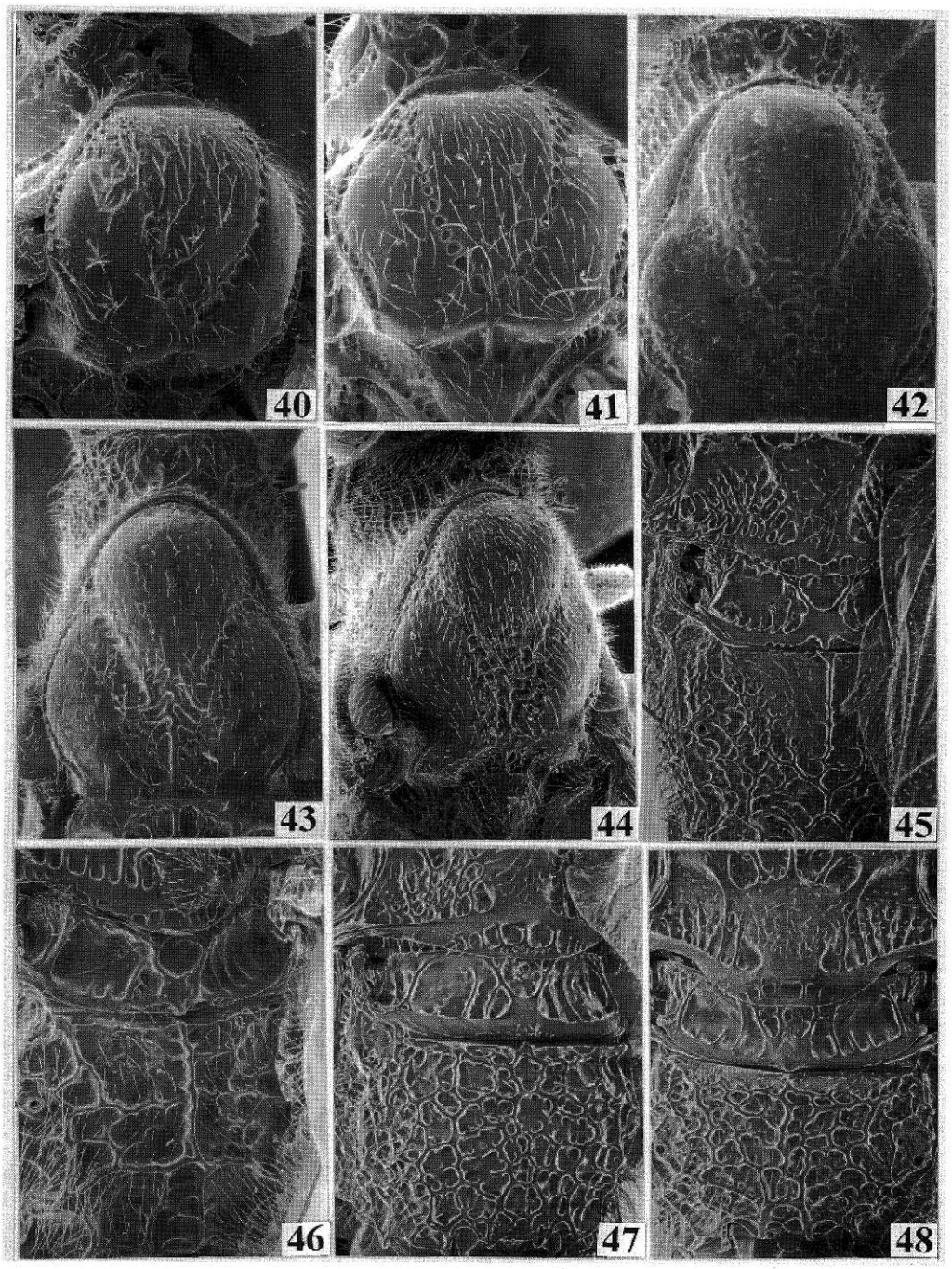
Fig. 22. Dorsal view of head of Helconinae ♀: 22, *Wroughtonia pterolophiae* sp. n.

Figs. 23-30. Lateral view of heads of Helconinae ♀: 23, *Aspicolpus punctus* sp. n.; 24, *Aspicolpus rugosus* sp. n.; 25, *Baeacis improcerus* sp. n.; 26, *Baeacis validus* sp. n.; 27, *Diospilus curtus* sp. n.; 28, *Diospilus nantouensis* sp. n.; 29, *Diospilus niger* sp. n.; 30, *Diospilus taiwanensis* sp. n.



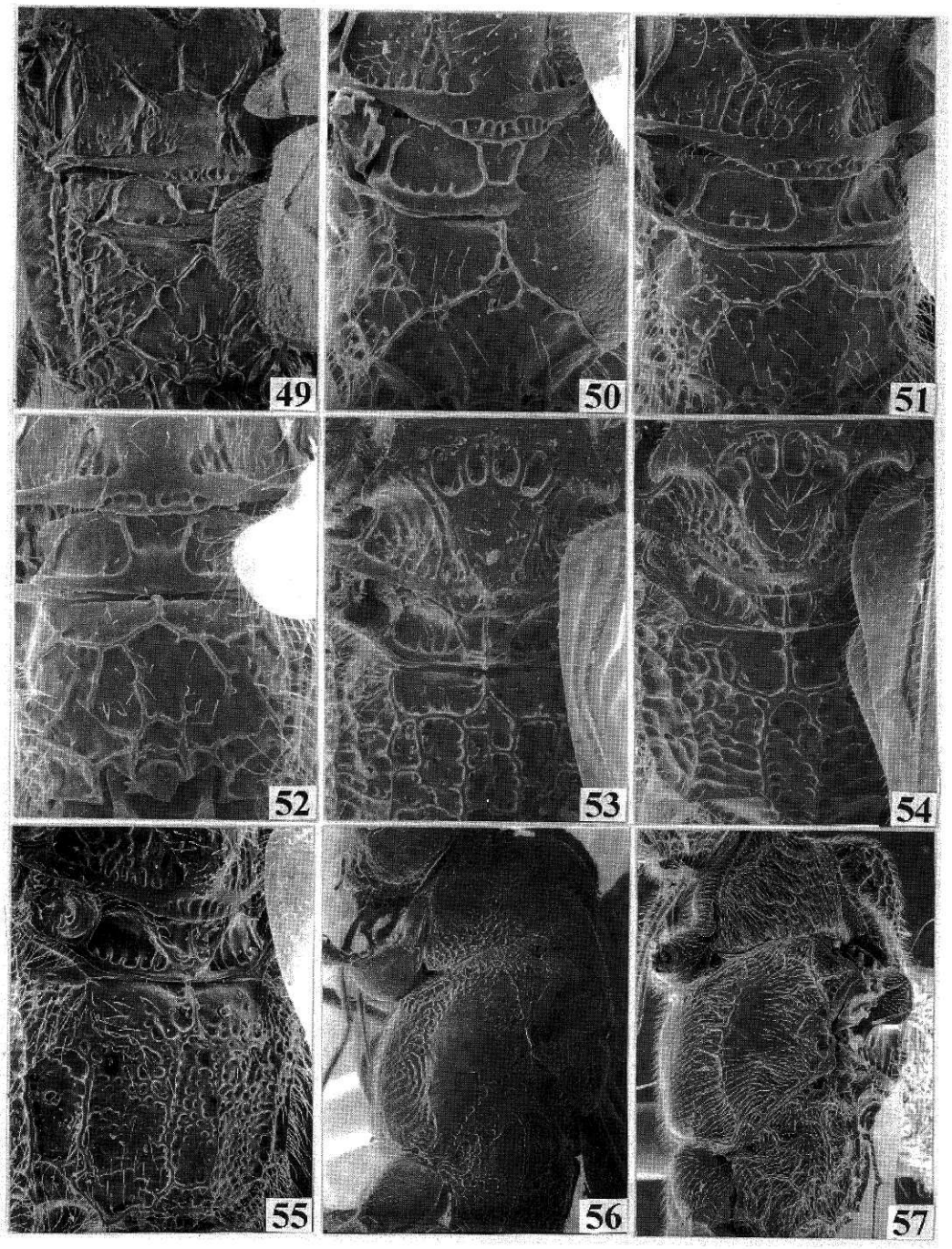
Figs. 31-33. Lateral view of heads of Helconinae ♀: 31, *Helcon claviventris* Wesmael; 32, *Wroughtonia petila* sp. n.; 33, *Wroughtonia pterolophiae* sp. n.

Figs. 34-39. Dorsal view of mesonota of Helconinae ♀: 34, *Aspicolpus punctus* sp. n.; 35, *Aspicolpus rugosus* sp. n.; 36, *Baeacis improcerus sp*. n.; 37, *Baeacis validus* sp. n.; 38, *Diospilus curtus* sp. n.; 39, *Diospilus nantouensis* sp. n.



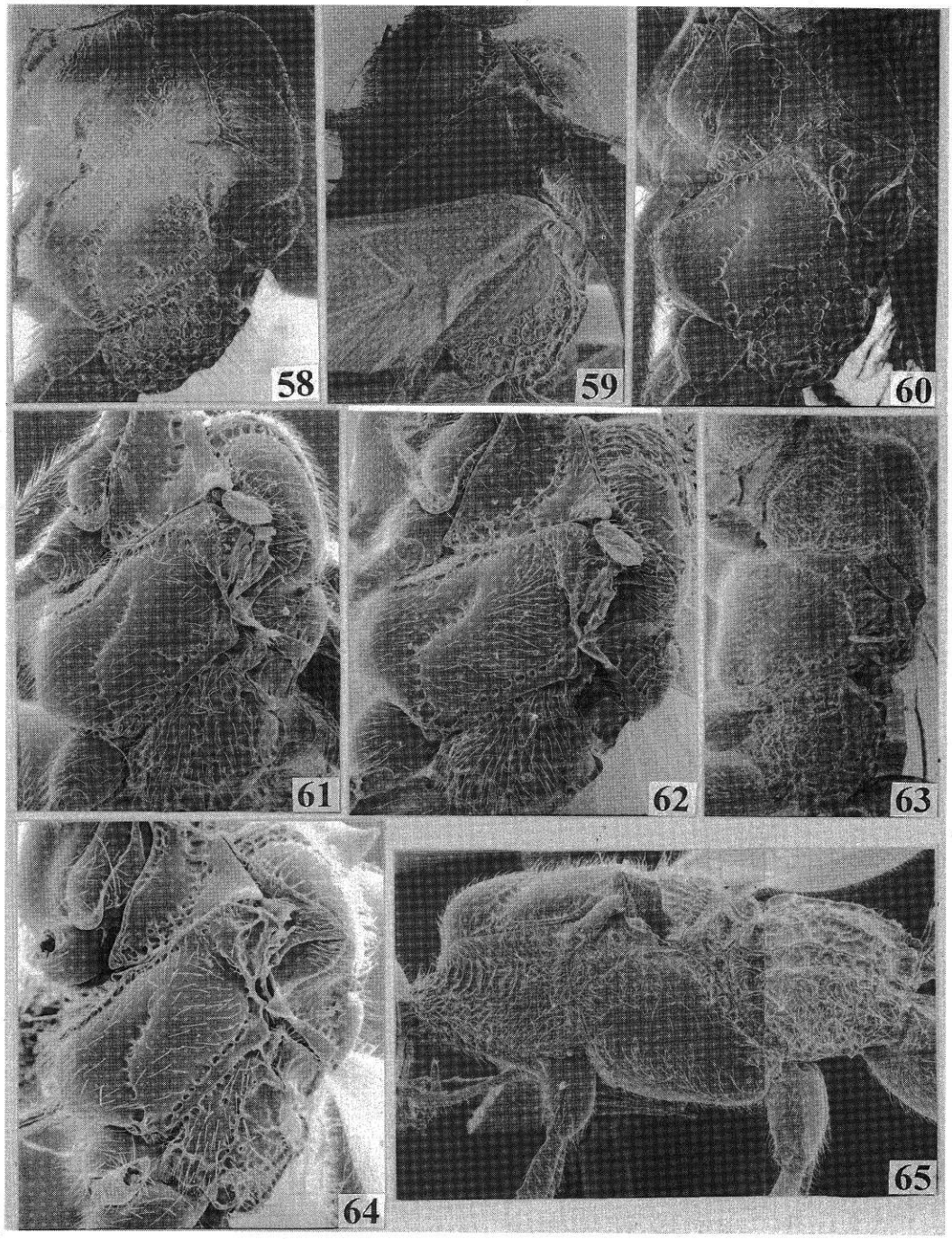
Figs. 40-44. Dorsal view of mesonota of Helconinae ♀: 40, *Diospilus niger* sp. n.; 41, *Diospilus taiwanensis* sp. n.; 42, *Helcon claviventris* Wesmael; 43, *Wroughtonia petila* sp. n.; 44, *Wroughtonia pterolophiae* sp. n.

Figs. 45-48. Dorsal view of metanota and propodea of Helconinae ♀: 45, *Aspicolpus punctus* sp. n.; 46, *Aspicolpus rugosus* sp. n.; 47, *Baeacis improcerus* sp. n.; 48, *Baeacis validus* sp. n.



Figs. 49-55. Dorsal view of metanota and propodea of Helconinae ♀: 49, *Diospilus curtus* sp. n.; 50, *Diospilus nantouensis* sp. n.; 51, *Diospilus niger* sp. n.; 52, *Diospilus taiwanensis* sp. n.; 53, *Helcon claviventris* Wesmael; 54, *Wroughtonia petila* sp. n.; 55, *Wroughtonia pterolophiae* sp. n.

Figs. 56-57. Lateral view of mesosomata of Helconinae ♀: 56, *Aspicolpus punctus* sp. n.; 57, *Aspicolpus rugosus* sp. n.



Figs. 58-65. Lateral view of mesosomata of Helconinae ♀ : 58, *Baeacis improcerus* sp. n.; 59, *Baeacis validus* sp. n.; 60, *Diospilus curtus* sp. n.; 61, *Diospilus nantouensis* sp. n.; 62, *Diospilus niger* sp. n.; 63, *Helcon claviventris* Wesmael; 64, *Diospilus taiwanensis* sp. n.; 65, *Wroughtonia petila* sp. n.

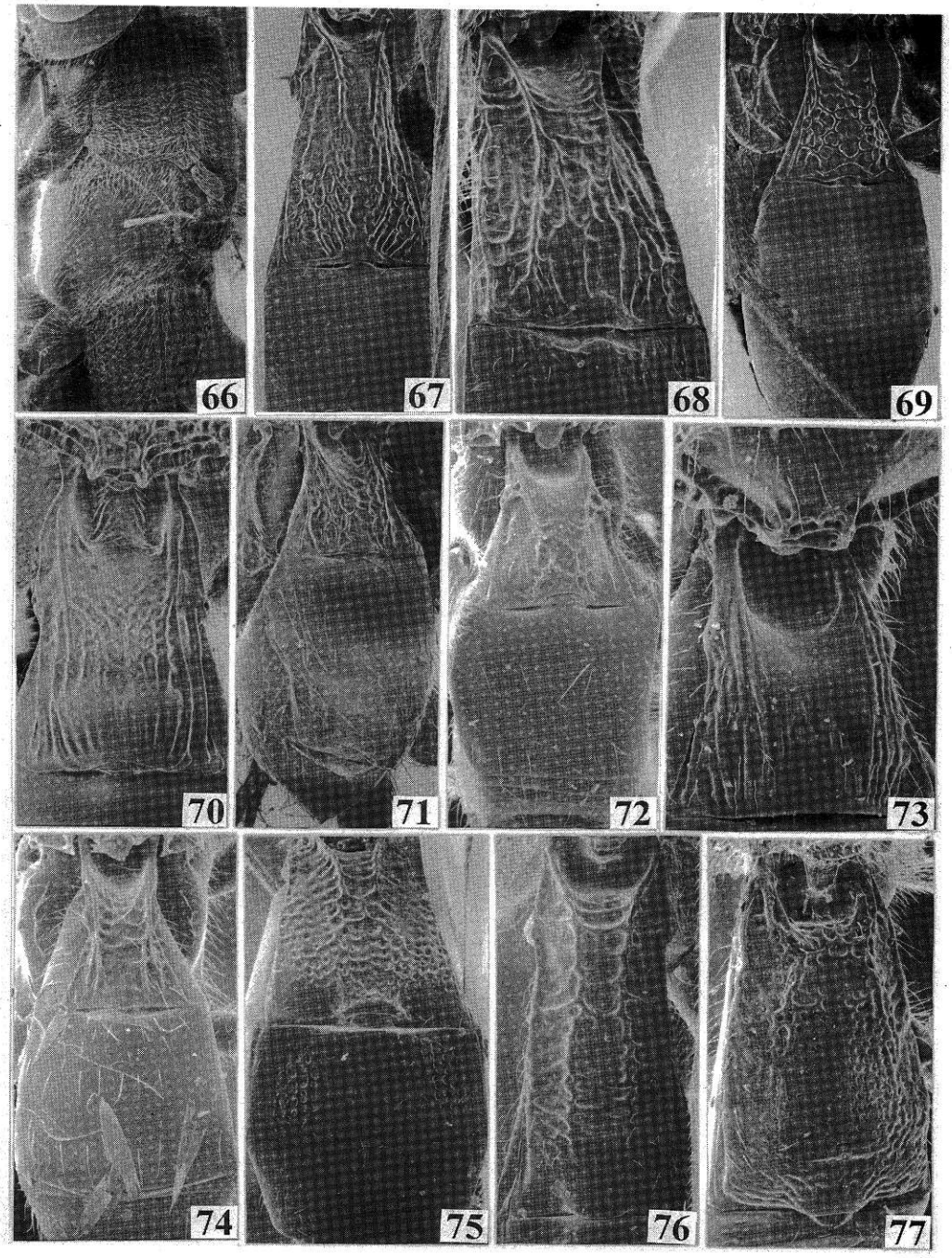
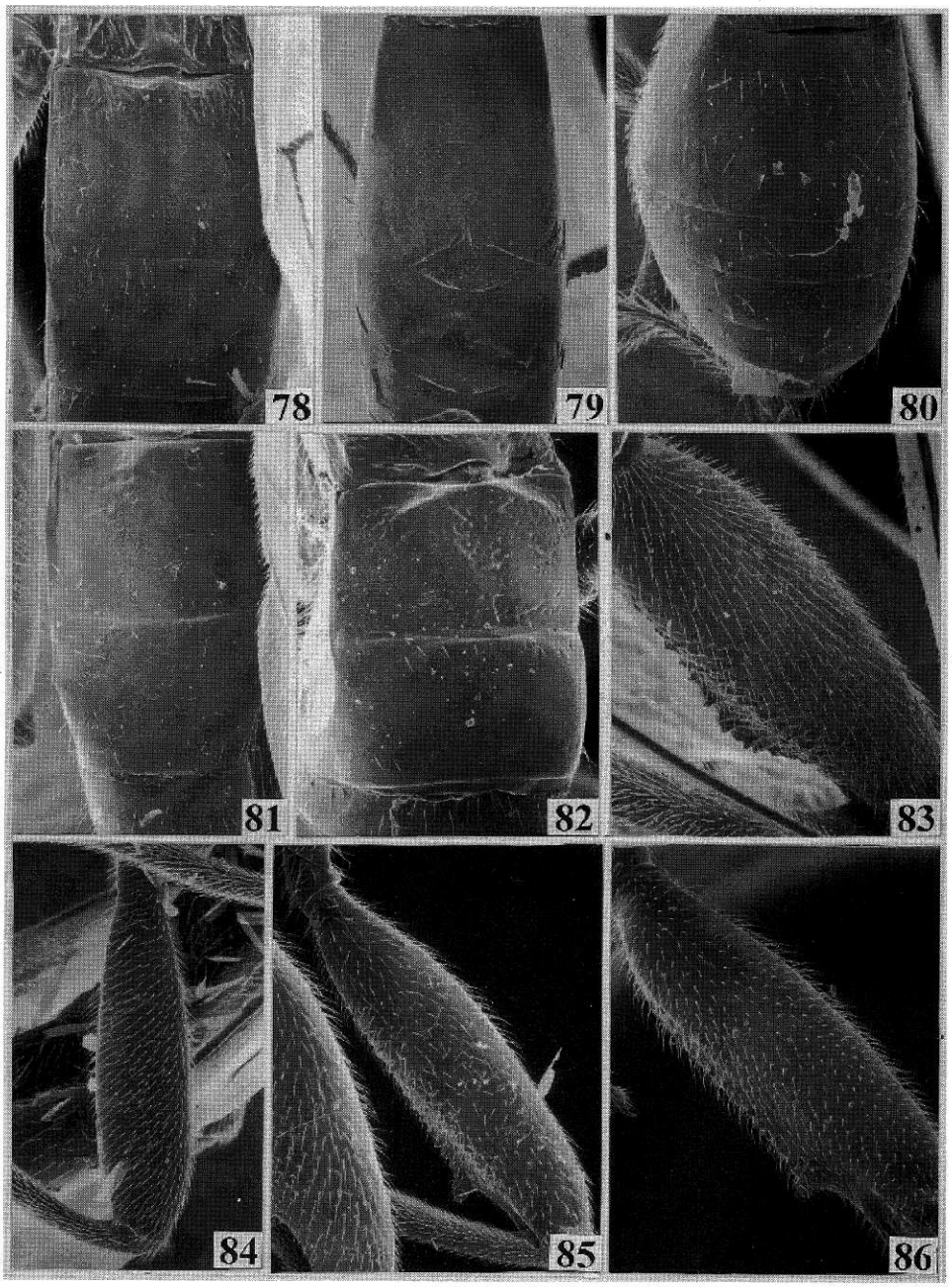


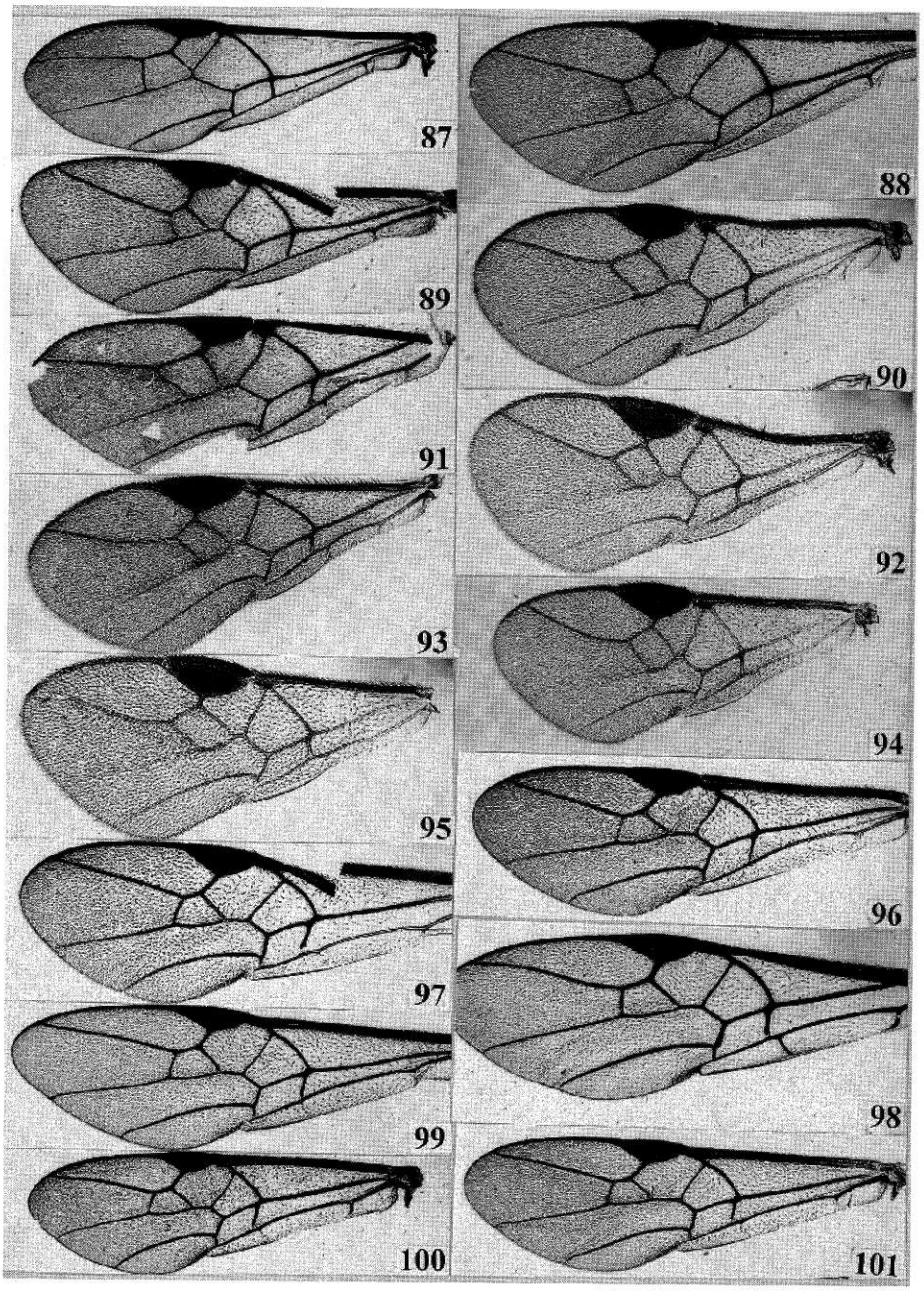
Fig. 66. Lateral view of mesosoma of Helconinae ♀: 66, *Wroughtonia pterolophiae* sp. n.

Figs. 67-77. Dorsal view of first metasomal terga of Helconinae ♀: 67, *Aspicolpus punctus* sp. n.; 68, *Aspicolpus rugosus* sp. n.; 69, *Baeacis improcerus* sp. n.; 70, *Baeacis validus* sp. n.; 71, *Diospilus curtus* sp. n.; 72, *Diospilus nantouensis* sp. n.; 73, *Diospilus niger* sp. n.; 74, *Diospilus taiwanensis* sp. n.; 75, *Helcon claviventris* Wesmael; 76, *Wroughtonia petila* sp. n.; 77, *Wroughtonia pterolophiae* sp. n.

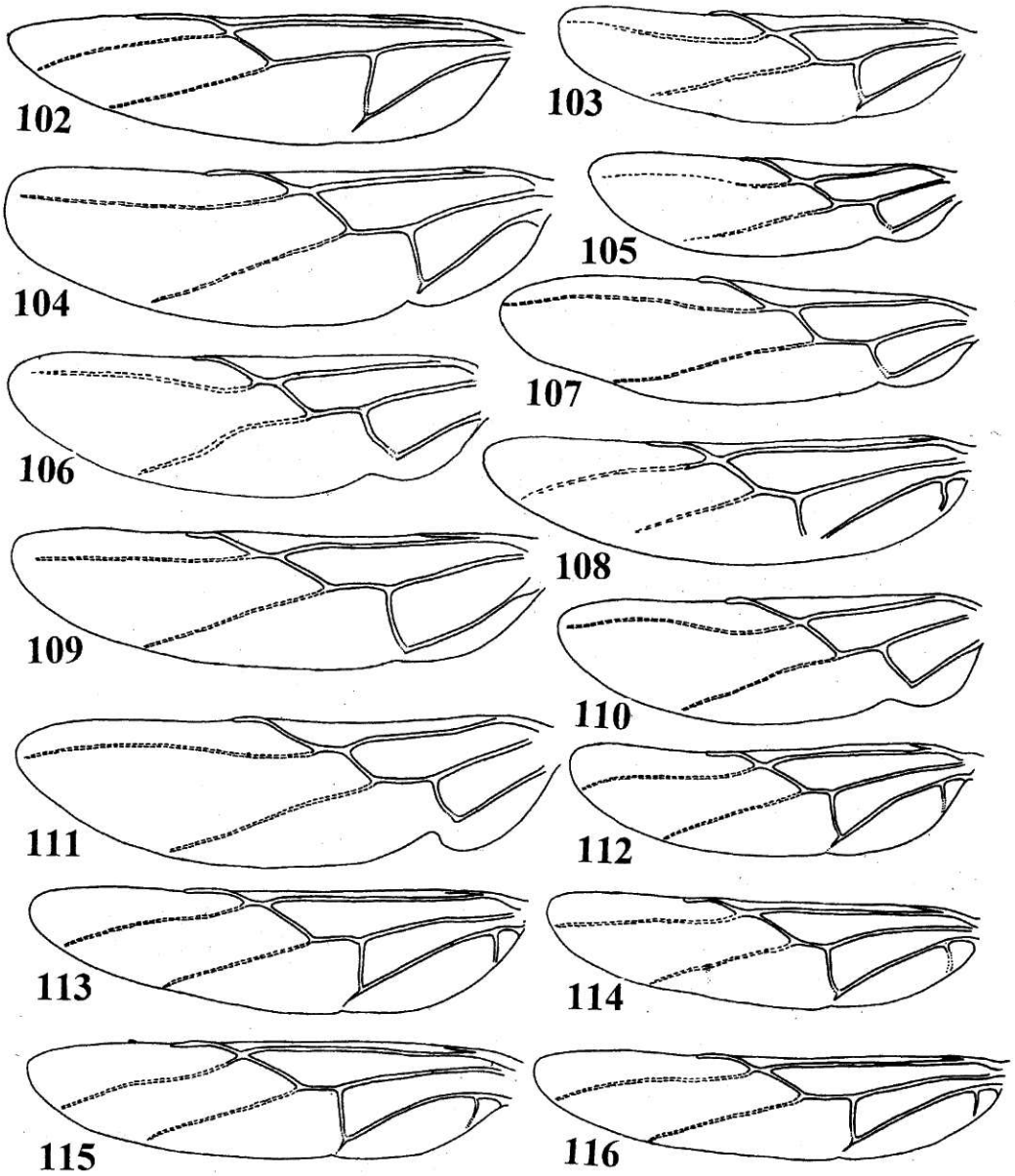


Figs. 78-82. Dorsal view of second and third metasomal terga of Helconinae ♀ : 78, *Aspicolpus rugosus* sp. n.; 79, *Baeacis validus* sp. n.; 80, *Diospilus niger* sp. n.; 81, *Wroughtonia petila* sp. n.; 82, *Wroughtonia pterolophiae* sp. n.

Figs. 83-86. Lateral view of metafemora of Helconinae ♀ : 83, *Helcon claviventris* Wesmael; 84, *Aspicolpus rugosus* sp. n.; 85, *Wroughtonia petila* sp. n.; 86, *Wroughtonia pterolophiae* sp. n.



Figs. 87-101. Forewings of Helconinae ♀ : 87, *Brulleia taiwanensis* sp. n.; 88, *Aspicolpus punctus* sp. n.; 89, *Aspicolpus rugosus* sp. n.; 90, *Baeacis improcerus* sp. n.; 91, *Baeacis validus* sp. n.; 92, *Diospilus curtus* sp. n.; 93, *Diospilus nantouensis* sp. n.; 94, *Diospilus niger* sp. n.; 95, *Diospilus taiwanensis* sp. n.; 96, *Helcon albus* sp. n.; 97, *Helcon claviventris* Wesmael; 98, *Helconidea uchida* (Watanabe); 99, *Wroughtonia petila* sp. n.; 100, *Wroughtonia spinator* (Lepeletier & Audinet-Serville); 101, *Wroughtonia pterolophiae* sp. n.



Figs. 102-116. Hindwings of Helconinae ♀ : 102, *Brulleia taiwanensis* sp. n.; 103, *Aspicolpus punctus* sp. n.; 104, *Aspicolpus rugosus* sp. n.; 105, *Diospilus curtus* sp. n.; 106, *Baeacis improcerus* sp. n.; 107, *Diospilus nantouensis* sp. n.; 108, *Helcon albus* sp. n.; 109, *Baeacis validus* sp. n.; 110, *Diospilus niger* sp. n.; 111, *Diospilus taiwanensis* sp. n.; 112, *Helcon claviventris* Wesmael; 113, *Wroughtonia petila* sp. n.; 114, *Helconidea uchida* (Watanabe); 115, *Wroughtonia spinator* (Lepeletier & Audinet-Serville); 116, *Wroughtonia pterolophiae* sp. n.

臺灣小繭蜂科（膜翅目）之分類

Ⅷ. 天牛繭蜂族、鄰繭蜂族及長繭蜂族[1]

周樑鎰[2] 許洞慶[3]

摘要：天牛繭蜂族(Brulleiini)、鄰繭蜂族(Diospilini)、長繭蜂族(Helconini)隸膜翅目、小繭蜂科、長繭蜂亞科(Helconinae)，全世界已知種類約 200 種，在臺灣則均爲首次記錄。本文共描述臺灣產之 2 種天牛繭蜂、8 種鄰繭蜂及 6 種長繭蜂，其中有 13 新種與 3 臺灣新記錄種。文中並附分屬與種檢索表及形質圖。

關鍵詞: 天牛繭蜂族、鄰繭蜂族、長繭蜂族、長繭蜂亞科、小繭蜂科、分類、臺灣。

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